

## **APPENDIX**

### DHEC Florence County Health Department Vital Records Renovation

#### **Plans**

- a 1.00 Code Review and Location
- a 2.00 Demo & Reno plans
- a 3.00 Power, Ceiling & HVAC plans
- a 4.00 Cabinet Plans, Elevations & Sections

#### **Specifications**

- 01000 Contractor Paid Governmental Cost
- 01100 Summary of Work
- 01140 Contractor's use of Premises
- 01210 Cash Allowances
- 01290 Schedule of Values
- 01330 Submittals
- 01630 Substitutions
- 01700 Construction Supervision
- 01730 Cutting and Patching
- 01740 Cleaning
- 01760 Warranty of Construction
- 01780 Project Closeout
- 01783 Project Closeout Submittals
- 02114 General Demolition
- 06220 Finish Carpentry and Millwork
- 06400 Architectural Woodwork
- 07840 Firestopping
- 07900 Caulking and Sealants
- 08111 Steel Door / Window Frames
- 08210 Flush Wood Doors
- 08800 Glass and Glazing
- 09250 Gypsum Drywall Systems
- 09252 Gypsum Drywall Finishing
- 09650 Vinyl Composition Floor Tile
- 09654 Rubber Base
- 09684 Modular Carpet Tiles
- 09900 Painting

Misc.

Through the wall Mail Slot

**CONTRACTOR PAID GOVERNMENTAL COSTS**

**PART 1 GENERAL**

**1.01 WORK INCLUDED**

- (A) All anticipated municipal, county and/or state fees required for this project. This specification supersedes any other description of fee assignments on the drawings or specifications.

**1.02 RELATED WORK**

- (A) General Conditions of the Contract.

**PART 2 PRODUCTS**

- 2.01 Contractor Paid Fees: The following fees shall be included in the project bid and shall be paid directly by the Contractor or, where required by the jurisdiction, paid by the Owner and credited to the Owner by the Contractor:

- (A) Building Permit Fee
  - (B) Plan Review Fee (where required)
  - (C) Zoning Compliance Review Fee (where required)
  - (D) Business License Fee
    - 1. Required of all Non-resident Contractors.
    - 2. Required of all Non-resident Subcontractors (confirm with municipality or county).
  - (E) Any other local, state or federal fees, not specifically called out in the contract documents, as required to conduct construction of the project.
- 2.02 It is the Contractor's responsibility to contact the municipality, county, state or federal agencies having jurisdiction over the project to determine the fee amount to include in the contract cost.
  - 2.03 Where a jurisdiction requires the Owner directly pay a fee scheduled for payment by the Contractor; the Contractor shall reimburse the Owner via credit the amount of the fee plus 10% of the fee being reimbursed.


**PART 3 EXECUTION (NOT REQUIRED)**

**END OF SECTION**

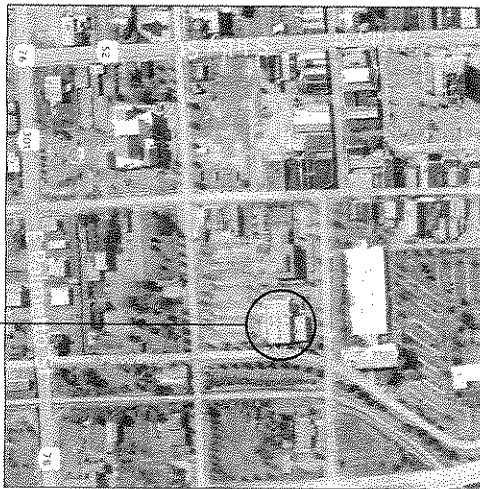
[illegible]

actual area increase by SAC 402.2 sq ft. less  
percent increase =  $4/3$  (100(703/705-0.25))  
percent increase = 100%  
total decrease area = 34,000 sq ft floor

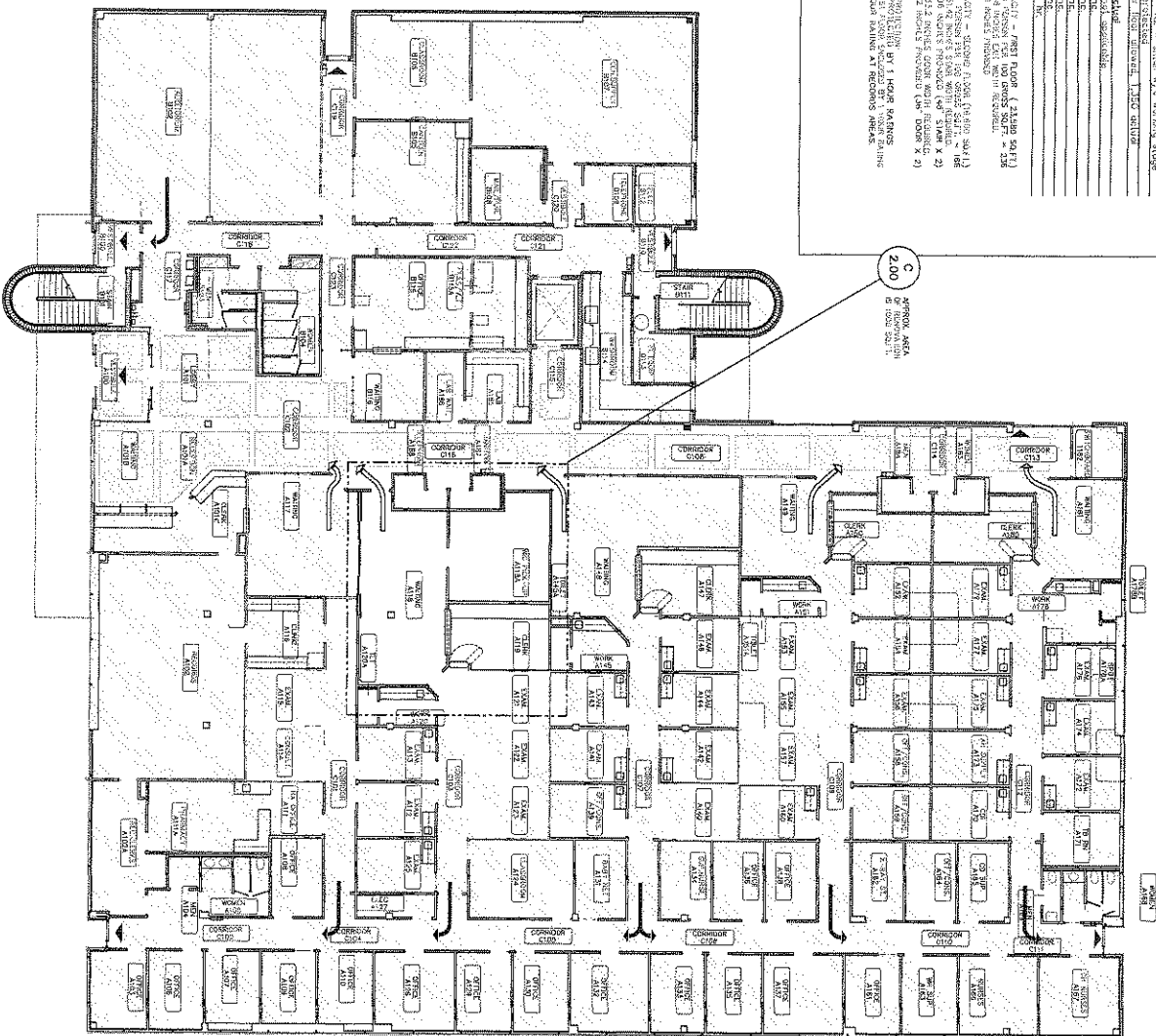
ORIGINAL BUILDING HAS NOT YET BEEN RECORDED  
ON THE PATENT. EGRESS PATHS ON FORTH CAPITAL  
BY THIS REGISTRATION. THE I.E.C. CODE OCCUPANCY  
CLASSIFICATION IS UNCHANGED FROM THE OCCUPANCY  
AT THE DATE OF CONSTRUCTION (E WITH SEPARATE SMALL  
APPROPRIATE).

ESTABLISHED FOREST PATHS -  
 < 50 PERSONS

## BUILDING LOCATOR MAP



TO VISIT THE JOB SITE, CONTACT  
CHEC BUILDING  
145 EAST CHEVES STREET  
FLORENCE, SC 29506  
(843) 615-3400 OR 811-4532



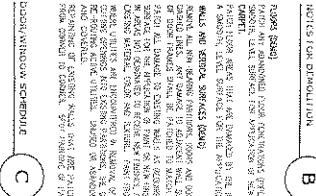
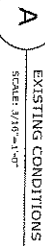
LOCATOR, OVERALL FIRST FLOOR PLAN & CODE ANALYSIS

SCALE: 3/32"=1'-0"

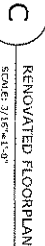
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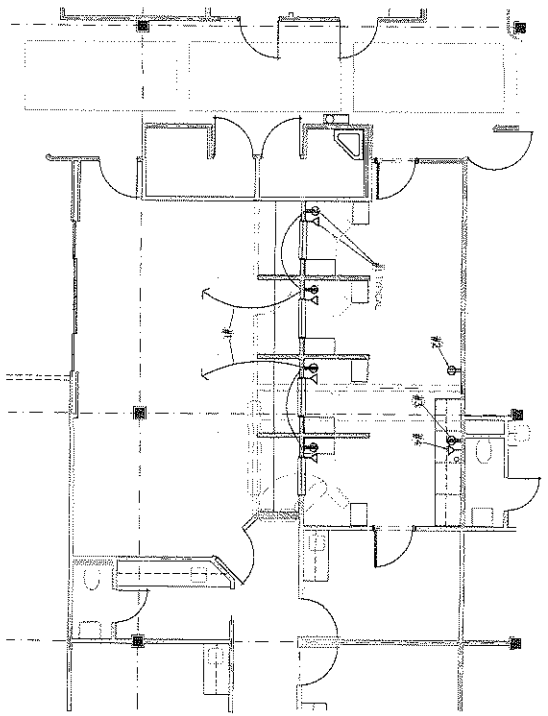
Florence DHEC  
Renovation to WIC Services Area  
Florence, South Carolina

**Goforth  
Brown &  
Associates**  
*architects and planners*



#	ROOM	FLOOR	DATE	WALL	CEIL.	CLINET.	NOTES
	ADJ. / WAINING	V.C.T.	NUMBER	PAINT	ACT. #	EXCPT.	1.4.5.4.8
	ADJ. / HATCHING		OPTICS	PAINT	ACT. #	EXCPT.	1.2.1.4.8
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**A**  
POWER / DATA PLAN  
SCALE: 3/16"=1'-0"

NOTES FOR POWER AND LIGHTING PLANS

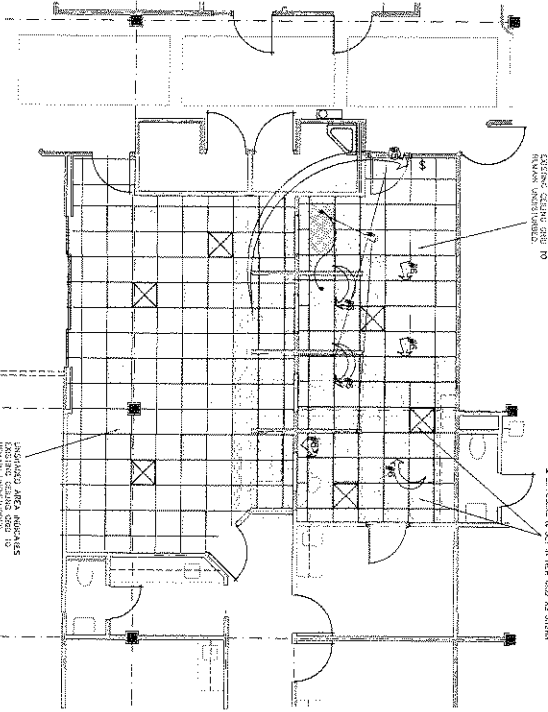
**A B C**

LEGENDS AND KEYS

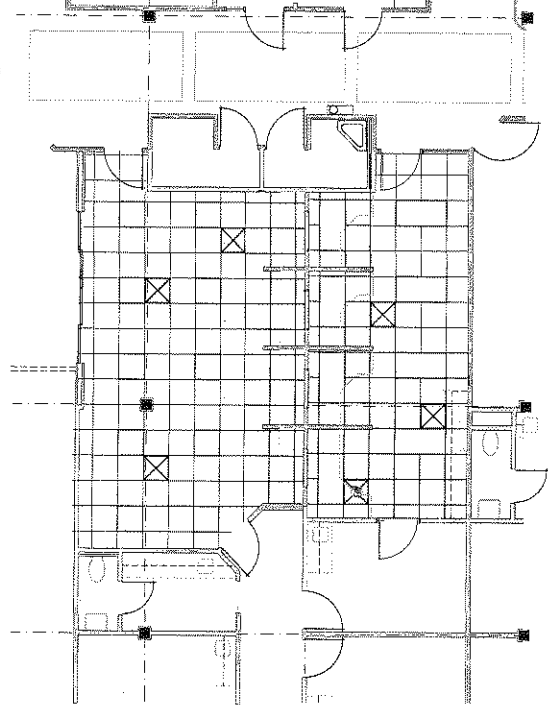
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**B**  
LIGHTING & CEILING PLAN  
SCALE: 3/16"=1'-0"



**C**  
HVAC PLAN  
SCALE: 3/16"=1'-0"

**Florence DHEC  
Renovation to WIC Services Area**  
Florence, South Carolina

**Goforth  
Brown &  
Associates**  
architects and planners



**SUMMARY OF WORK**

**PART 1 GENERAL**

**1.01 WORK INCLUDED**

- A) This project consists of the Florence DHEC renovation to the WIC services area.
- B) Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these specifications.

**1.02 PROJECT DESCRIPTION**

- A) The project consists of a small renovation to expand the client interview area.
- B) Renovation includes some minor demolition, new partitions, doors and windows as well as some suspended ceiling and ceiling tile replacement. Finishes include VCT, carpet tiles and painted wall surfaces.

**1.03 SAFETY COMPLIANCE**

- A) In addition to any detailed requirements of these specifications, the contractor shall meet the requirements of federal and state safety standards, whichever is more restrictive. Matters of interpretation of these standards shall be submitted by the General Contractor to the respective administrative agency for resolution before starting work.

**1.04 OWNER OCCUPANCY**

- A) The Owner will occupy the site during entire period of construction for conduct of his normal operations. Cooperate with Owner's Representative in all construction operations to minimize conflict, and to facilitate Owner usage.
- B) Contractor shall, at all times, conduct his operations as to insure minimal inconvenience to general public.

**END OF SECTION**

**CONTRACTOR'S USE OF PREMISES****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) This section applies to situations in which the Contractor or his representatives including, but not necessarily limited to, suppliers, subcontractors, and employees.

**1.02 QUALITY ASSURANCE**

- (A) Promptly upon the award of the Contract, notify all pertinent personnel regarding requirements of this Section.
- (B) Require that all personnel who will enter upon the Owner's property certify their awareness of and familiarity with the requirements of this section.

**1.03 TRANSPORTATION FACILITIES**

- (A) Truck and equipment access:
1. To avoid traffic conflict with vehicles of the Owner's employees and customers, and to avoid over-loading of streets and driveways elsewhere on the Owner's property, limit the access of trucks and equipment to the designated "Contractor's Entrance".
  2. Provide adequate protection for curbs and sidewalks over which trucks and equipment pass to reach the job site.
- (B) Contractor's vehicles:
1. Require contractor's vehicles, vehicles belonging to employees of the contractor, and all other vehicles entering the Owner's property in performance of the work of the contract, to use only the designated access route.
  2. Do not permit such vehicles to park on any street or other area of the Owner's property except in the area to be designated.

**1.04 SECURITY**

- (A) Restrict the access of all persons entering upon the Owner's property in connection with the work to the contractor's entrance and to the actual site of the work.

**1.05 PROTECTION OF EXISTING PROPERTY**

- (A) After the completion of the construction, the condition of the area shall be restored to its original appearance at the contractor's expense.
- (B) The contractor shall be responsible for any damage done to lawns, sidewalks, or drives caused by equipment or by any paint or other chemicals used in the execution of the work.

**1.06 MISCELLANEOUS**

- (A) Confine operations at site to areas permitted by Owner and Contract Documents.
- (B) Do not unreasonably encumber site with materials or equipment.
- (C) Do not load structure with weight that will endanger structure.
- (D) Assume full responsibility for protection and safekeeping of products stored on premises.
- (E) Move any stored products which interfere with operations of Owner.

**END OF SECTION**



## CASH ALLOWANCES

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) To provide adequate budget and bonding to cover items not precisely determined by Owner prior to advertising for bids, Contractor shall allow within the proposed contract amount the sums described below.
- (B) Contractors are referred to the General Conditions, Article 3, Paragraph 3.8 for conditions governing the inclusion of allowances in the contract sum.

## 1.02 ESTABLISHED METHODS

- (A) When a cash allowance is set for certain items or materials, it is understood that any savings under such allowance shall accrue to the Owner and if the material purchased costs more than the Allowance, such additional cost shall be borne by the Owner.
- (B) If allowance is insufficient for its intended purpose, the General Contractor shall notify the Architect in writing along with an estimate of additional funds required. Do **NOT** proceed with purchase from an allowance until advised to proceed by the Architect.

## 1.03 ALLOWANCES

- (A) Unless stated otherwise in description below, allowances shall include purchase and installation, delivery cost to the job and sales tax; they do not include profit to the general contractor
- (B) After receipt of bids, as above mentioned, the successful subcontract shall become part of the scope of work of the general contractor at no additional cost to the Owner, except for the stipulated cash allowance as adjusted.
- (C) This method established to allow general contractor to control scheduling of subcontractor so as to meet established completion date.

## 1.04 UNDESCRIBED ALLOWANCES

- (A) Allowances and provisions not further described in these specifications will be specified and bid at a later date.

## PART 2 PRODUCTS

## 2.01 FINISH HARDWARE &amp; CONTINGENCY ALLOWANCE

- (A) Allow the sum of \$ 2,000.00 for the purchase and delivery and installation as indicated under *Finish Hardware*. Allowance to include delivery cost to the job and sales tax. Does not include profit to general contractor. This allowance further described in the *Finish Hardware* section of these specifications.

## PART 3 EXECUTION

## 3.01 PROCEDURE

- (A) After receipt of bids of allowance items, as described above, the successful subcontractor shall become part of the scope of work of the General Contractor at no additional cost to the Owner, except for the stipulated cash allowance as adjusted.

- (B) This method is established to allow general contractor to control scheduling of subcontractor so as to meet established completion date.

**3.02 ACCOUNTING**

- (A) The General Contractor shall list each allowance item as a line item in the schedule of values. The total allowance value shall be adjusted by deductions from the individual allowances that will occur over the life of the project.
- (B) The General Contractor shall be responsible for maintaining an accounting of all expenses associated with each cash allowance item and this accounting shall be kept current at all times.
- (C) The accounting of allowances may be requested for inspection by the Architect or Owner for accounting or payment verification purposes during the course of construction and as part of the close-out documents.

**END OF SECTION**

**SCHEDULE OF VALUES****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) Provide a detailed breakdown of the agreed Contract Sum showing values allocated to each of the various parts of the Work, as specified herein and in other provisions of the Contract documents.

**1.02 RELATED WORK**

- (A) Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 0 of these specifications.
- (B) Schedule of Values is required under the General Conditions. The minimum division of categories shall comply with requirements of this specification.
- (C) Schedule of Values is required to be compatible with the "continuation sheet" accompanying application for payment.

**1.03 QUALITY ASSURANCE**

- (A) Use required means to assure arithmetical accuracy of the sums described.
- (B) When so required by the Architect, provide copies of the subcontracts or other data acceptable to the Architect, substantiating the sums described.

**1.04 SUBMITTALS**

- (A) Prior to first application for payment, submit proposed Schedule of Values to the Architect for approval of format. The Architect reserves the right to require additional line items or a different breakdown of the values.
- (B) Secure the Architect's approval of the Schedule of Values prior to submitting first application for payment.

**PART 2 PRODUCTS****2.01 ORGANIZATION**

- (A) The Schedule of Values shall be organized and titled under the standard 16 CSI divisions, and these 16 divisions shall be considered a minimum breakdown.
- (B) Each cash allowance shall be listed as a line item on the Schedule of Values. Accounting for allowances shall be as described in specification section 01210 – *Cash Allowances*.
- (C) Each change order shall be added as a line item to the Schedule of Values.
- (D) The contractor may provide additional sub-categories under these divisions as necessary for tracking of sub-contract costs, subject to approval by the architect.
- (E) Presentation of the approved Schedule of Values shall be consistent and unchanging throughout the life of the project.

**PART 3 EXECUTION (NOT REQUIRED)****END OF SECTION**

**SUBMITTALS****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) Contractor shall make submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements.
- (B) Related Work: Documents affecting work of this section include, but are not necessarily limited to General Conditions, Supplementary Conditions, and Sections in Divisions 0 & 1 of these specifications.
- (C) Individual requirements for submittals are also described in pertinent sections of these specifications.

**1.02 WORK NOT INCLUDED**

- (A) Unrequired submittals will not be considered or reviewed by the Architect.
- (B) The contractor may require his subcontractors to provide drawings, setting diagrams, and similar information to help coordinate the work, but such data shall remain between the Contractor and his subcontractors and will not be reviewed by the Architect.

**1.03 CONTRACTOR'S RESPONSIBILITY**

- (A) Prior to each submittal, carefully review and coordinate all aspects of each item being submitted.
- (B) Verify that each item and the submittal for its conformance in all respects with the specified requirements.
- (C) Determine and verify field measurements, field construction criteria, catalog numbers and similar data, and conformance with specifications.
- (D) By affixing the contractor's signature to each submittal, contractor certifies that this coordination has been performed. Submittals forwarded to the Architect without contractors review or signature shall be returned without review. Architect will not review re-submittals until re-submittal has been reviewed by contractor and contains contractor's signature.
- (E) Notify the Architect in writing, at time of submission, of any deviations in submittals from requirements of the Contract Documents.
- (F) No fabrication or work which requires approved submittals shall begin until return of submittals has written approval from Architect.

**1.04 SUBMITTALS**

- (A) Make submittals of shop drawings, product data, samples, and other items in accordance with the provisions of this section.
- (B) Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the work or in the work of any other contractor.

**PART 2 PRODUCTS****2.01 MANUFACTURERS' LITERATURE**

- (A) Where contents of submitted literature from manufacturers include data not pertinent to the submittal, Contractor shall clearly show which portions of the contents are being submitted for review. Manufacturer's literature forwarded to the Architect without pertinent data highlighted shall be returned to contractor unapproved.

- (B) Modify manufacturer's standard schematic drawings and diagrams to delete information which is not applicable to the work. Supplement standard information to provide information specifically applicable to the work.
- (C) Submit the number of copies which are required to be returned, plus one copy which will be retained by the Architect.

#### 2.02 SAMPLE WARRANTY

- (A) Where specifications call for a sample warranty to be submitted, such warranty shall be submitted with any deviations from the specified warranty requirements highlighted for consideration. **Any deviations from specified requirements may make the submittal and/or manufacturer subject to rejection.**
- (B) **Specified warranty requirements are not subject to negotiation and are not subject to downgrading because the manufacturer specified (or accepted as a substitution) does not meet specified warranty requirements with their 'standard' warranty.**
- (C) It is the General Contactor's responsibility to assure that all specified warranty requirements are met, and that all required sample warranty information is submitted with the material submittal. Failure to include sample warranty information with a submittal will delay review and return of that submittal.

#### 2.03 SAMPLES

- (A) Provide sample or samples identical to the precise article proposed to be provided.
- (B) Samples shall be of sufficient size and quantity to clearly illustrate functional characteristics of the product, with integrally related parts and attachment devices which shall indicate full range of color, texture and pattern. Unless otherwise specified, submit samples in the quantity which is required to be returned, plus two which will be retained by the Architect.

#### 2.04 COLORS AND PATTERNS

- (A) Unless the precise color and pattern is specifically called out in the Contract Documents, submit accurate color and pattern charts to the Architect for selection as required by the applicable specification section.
- (B) Submittals containing color selection will be held by the Architect pending submission of **all** submittals requiring color selection. Upon receipt of all submittals with color options, the Architect shall prepare a Comprehensive Schedule of Colors and Finishes for review by the Owner. Such preparation and review shall occur within thirty (30) days after the General Contractor has submitted samples, color charts or other submittals with color options, in duplicate, of **all** colors and finishes specified or required to be selected.
- (C) Should the Architect require more than 30 days to furnish the contractor the color selections, then the contract performance time shall be extended by the number of additional days required to return the color selections.
- (D) The General Contractor may request a submittal with color selection be reviewed without being held for a comprehensive color selection if the following criteria are met:
  - 1. The submittal review is clearly identified by the General Contractor as critical to maintaining the project schedule, and the General Contractor can illustrate the submittal was attained from the supplier as expeditiously as possible.
  - 2. The color selection is functionally insignificant or incidental to the material being submitted in the opinion of the Architect.
- (E) Any request that the Architect make an independent color selection shall be made in

writing on or attached to, the submittal and is subject to approval or rejection at the discretion of the Architect.

### PART 3 EXECUTION

#### 3.01 IDENTIFICATION OF SUBMITTALS

- (A) Submittals shall be identified by specification and paragraph number.
- (B) When material is resubmitted for any reason, transmit under a new letter of transmittal and with a new transmittal number. On resubmittals, cite the original submittal number for reference.
- (C) Accompany each submittal with a letter of transmittal showing all information required for identification and checking.
- (D) Maintain an accurate submittal log for the duration of the work, showing current status of all submittals at all times.

#### 3.02 GROUPING OF SUBMITTALS

- (A) Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
- (B) Architect shall make no color selections until **all** submittals relative to or requiring color selection are received (see 2.04).
- (C) Partial submittals may be rejected as not complying with the provisions of the contract and the contractor may be held liable for delays so occasioned.

#### 3.03 TIMING OF SUBMITTALS

- (A) Make submittals far enough in advance of scheduled dates for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery.
- (B) Where review of submittals is a critical element to maintaining the schedule, the General Contractor shall indicate the projected submission date of these to the architect on the project schedule, along with an allowance for not less than 15 calendar days of review time by the Architect/Engineer, and the delivery date of the items contained in such a submittal.
- (C) It should be noted that no submittal should be considered immune from rejection by the Architect/Engineer if the submittal does not contain the information required by these specifications. Rejection of a submittal that has been identified by the General Contractor as critical to maintaining the schedule does not constitute grounds for a claim for extension of the contract time, nor does it constitute a claim for exemption from liquidated damages.

#### 3.04 ARCHITECT'S REVIEW

- (A) Review by the Architect does not relieve the contractor from responsibility for errors which may exist in the submitted data.
- (B) Submittals shall be reviewed by the architect/engineer and returned to the General Contractor as rapidly as possible; however in no case shall the contractor presume or schedule a review period of less than 15 calendar days for A/E review.
- (C) Where the submittal is not identified as critical to maintain the schedule as described in 3.03(B), or where a submittal is held for color selection as described in 2.04(B) of this specification, the Architect may hold a submittal for longer than this 15 calendar day period. For these items, an A/E review period of greater than 15 days does not

constitute a claim for extension of the contract completion date, nor does it constitute a claim for exemption from liquidated damages.

**3.05 DISTRIBUTION**

(A) Contractor to distribute reproductions of shop drawings and copies of Product Data which carry Architect review stamp to:

1. Subcontractors.
2. Supplier or Fabricator.
3. Other affected contractors.
4. Job site file.

**END OF SECTION**

**SUBSTITUTIONS (10 DAY PRIOR APPROVAL)****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) To establish a mandatory method or system of submitting and approval or disapproval of various items, materials, equipment, products etc., in lieu of those specified or indicated.
- (B) Related Work: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

**1.02 QUALITY ASSURANCE**

- (A) The contract is based on the standards of quality established in the Contract Documents but specific reference in the specifications to any article, device, product, materials, fixture, form or type of construction, etc., by name, make, model or catalog number, with or without the words "or equal", shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition and the Contractor in such cases may, at his option, use any article, device, product, material, fixture, form or type of construction which, in the judgement of the Architect/Engineer expressed in writing, is equal to that named.
- (B) Where quality and other characteristics are very nearly the same, the question of determining equal materials and readily available service sometime resolves itself to a matter of personal opinion and judgement and in these and all other cases involving the approval of materials, the opinion, judgement and decision of the Architect/Engineer and the Owner shall be final and bind all parties concerned.
- (C) The following products do not require further approval except for interface within the work:
  - 1. Products specified by reference to standard specifications such as ASTM & similar standards.
  - 2. Products specified by manufacturer's name and catalog model number.

**1.03 REQUEST FOR APPROVAL**

- (A) Requests for written approval to substitute materials or equipment considered by the Contractor as equal to those specified must have been submitted for approval ten (10) calendar days prior to bid opening date to the Architect/Engineer.
- (B) Format of Request:
  - 1. Requests must be submitted to the Architect/Engineer in writing.
  - 2. The written request must **clearly identify the specification section** (and paragraph if appropriate) along with any deviations from the specified product specification.
  - 3. Identify compliance with pertinent standards of quality as listed under the "Quality Assurance" paragraph of part one of the specification section. Identify any deviations or alternate standards of quality.
  - 4. Requests must be accompanied by samples, descriptive literature, and engineering information as necessary to fully identify and allow appraisal of the product.
- (C) Failure to comply with either the time frame for approval or format for the approval request (as identified in paragraphs A & B above) is in itself sufficient cause for rejection of the approval request.

**1.04 APPROVED SUBSTITUTIONS**



- (A) Approval of the Architect/Engineer to use materials and/or equipment, if granted, will have been in the form of a written addendum and will have been issued to all bidders of record. Approved substitutions may be used at Contractor's option.
- (B) Approval of an item submitted as a request for approval does not relieve that product from compliance with the specification section performance, quality, construction, and material or warranty requirements.
- (C) No substitutions will be allowed, nor will an increase in Contract be allowed (for using materials specified) if substitutions have been requested later than ten (10) days prior to bid opening date.

**END OF SECTION**

**CONSTRUCTION SUPERVISION (SUPERINTENDENT)****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) The General Contractor shall employ a full time superintendent for supervision of construction and coordination of trades to maintain compliance with the contract documents.
- (B) Related Work: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 0 of these specifications.

**1.02 QUALITY ASSURANCE**

- (A) The General Contractor's superintendent shall have not less than 5 years direct experience in construction of the type and extent presented by this contract.
- (B) The superintendent shall have training and experience in reading contract documents and in interpreting all types of contract documents presented by this contract, architectural and engineering.

**1.03 SUBMITTALS**

- (A) Upon request of Architect, submit data demonstrating qualifications of person or persons the contractor proposes to engage as a construction superintendent. Such submittal is subject to approval by the Architect.
- (B) Should the General Contractor propose using multiple superintendents for specialty oversight or periods of limited duration; a submittal of intent, qualifications and job descriptions shall be mandatory for each superintendent proposed. Such submittal is subject to approval by the Architect.
- (C) Rejection of any individual(s) for failure to meet the Quality standards established shall be the reserved right of the Architect and such a decision shall be final.

**1.04 RESPONSIBILITIES**

- (A) It is understood that the superintendent is the direct employee of the General Contractor and the primary 'charge of responsibilities', 'job description' or 'terms of employment' shall be established by the General Contractor. However, the following responsibilities shall be considered as a minimum requirement for any person acting as construction superintendent under this contract:
  - 1. The superintendent shall be on the job site at all times during the 40 hour standard week as established by the contractor and/or shall be on the job site at any time a trade or subcontract other than those forces directly employed by the General Contractor are executing work under this contract.
  - 2. The superintendent shall be familiar with the work in progress during all phases of construction, including the manpower on the project and the status of each trade's progress.
  - 3. All coordination between the Owner's agents or normal operation in association with the construction site shall be the responsibility of the superintendent.
  - 4. The superintendent is expected to remain on the project from the notice to proceed throughout the punch list process, unless multiple superintendents have been approved as outlined under paragraph 1.04.

**1.05 REPLACEMENT RESIGNATION OR TERMINATION**

- (A) Should the construction superintendent become ill, take vacation, or be absent from the project site for any extended period of time, the General Contractor shall appraise the Architect of the circumstances and duration of such absence, and provide a competent replacement for the period involved.
- (B) Should the construction superintendent resign or be terminated from the employ of the General Contractor, the Architect shall be appraised and qualifications of the proposed replacement superintendent shall be presented as indicated in 1.03 and 1.04 of this section.

**1.06 ARCHITECTS AUTHORITY TO REPLACE**

- (A) The Architect reserves the right to assess the performance of the superintendent for compliance with the Quality standards and minimum responsibilities as established in this section. Should the superintendent fail to meet this criteria, in the opinion of the Architect, the Architect may require the General Contractor to replace the superintendent.
- (B) Should such a replacement be requested, the General Contractor shall present qualifications of the replacement superintendent in accordance with the provisions of this specification section within seven (7) calendar days.

**PART 2 PRODUCTS (NOT REQUIRED)**

**PART 3 EXECUTION (NOT REQUIRED)**

**END OF SECTION**

**CUTTING AND PATCHING****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) In addition to requirements of the General Conditions, the General Contractor shall be responsible for all cutting, fitting and patching, including excavation and backfill, required to complete the work as indicated on drawings or to:
1. Make the several parts fit properly.
  2. Uncover work to provide for installing, inspecting, or both, of ill-timed work.
  3. Remove and replace work not conforming to requirements of the Contract Documents.
  4. Remove and replace defective work.
  5. In addition to other requirements specified, upon the Architect's request uncover work to provide for inspection by the Architect of covered work, and remove samples of installed materials for testing.
  6. Do not cut or alter work performed under separate contracts without the Architect's written permission.
  7. Provide routine penetrations of non-structural surfaces for installation of piping ductwork and electrical conduit.
- (B) Related Work: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 0 of these Specifications.

**1.02 QUALITY ASSURANCE**

- (A) Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

**1.03 SUBMITTALS**

- (A) Submit written request to architect well in advance of executing any cutting or alteration which will affect the work of the Owner, Contractors, and/or the structural value or integrity of any element of the project.
- (B) Visual qualities of sight-exposed elements or the efficiency, operation life, maintenance or safety of operational elements shall not be impaired by this operation.

**PART 2 PRODUCTS****2.01 MATERIALS**

- (A) For replacement of items removed, use materials complying with pertinent sections of these specifications.

**PART 3 EXECUTION****3.01 EXAMINATION**

- (A) Inspect existing conditions, including elements subject to movement or damage during cutting, excavating, patching and backfilling.
- (B) After uncovering the work, inspect conditions affecting installation of new work.
- (C) Report unsatisfactory or questionable conditions to the Architect in writing; do not proceed with work until Architect has provided further instructions.

**3.02 PREPARATION**

- (A) Provide required protection including, but not necessarily limited to, shoring, bracing, and support to maintain structural integrity of the work.
- (B) Provide devices and methods to protect other portions of project from damage.
- (C) Provide protection from the elements for that portion of the project which may be exposed by cutting and patching work, and maintain excavations free from water.

**3.03 PERFORMANCE**

- (A) Perform required excavating and backfilling as required under pertinent other sections of these specifications and by methods which will prevent settlement and damage to other work.
- (B) Perform cutting and demolition by methods which will prevent damage to other portions of the work and provide proper surfaces to receive installation of repair and new work.
- (C) Perform fitting and adjusting of products to provide finished installation complying with the specified tolerances and finishes.
- (D) Employ the original installer or fabricator to perform cutting and patching for existing roof systems, weather-exposed or moisture-resistant elements, and sight-exposed finished surfaces.
- (E) Restore work which has been cut or removed; install new products to provide completed work in accord with requirements of contract documents.
- (F) Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- (G) Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes to nearest intersection or refinish the entire unit for an assembly.

**END OF SECTION**

**CLEANING**

**PART 1 GENERAL**

**1.01 WORK INCLUDED**

- (A) Throughout the construction period, maintain the buildings and site in a standard of cleanliness as described in this section.
- (B) Execute cleaning, during progress of the work, and at completion of the work, as required by General Conditions.
- (C) In addition to standards described in this Section, comply with requirements for cleaning for specific products or work as described in their sections of these specifications.
- (D) Related Documents: Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

**1.02 QUALITY ASSURANCE**

- (A) Conduct daily inspection, and more often if necessary, to verify that requirements for cleanliness are being met. In addition to the standards described in this Section, comply with pertinent requirements of governmental agencies having jurisdiction.

**1.03 DISPOSAL REQUIREMENTS**

- (A) Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.
- (B) Remove waste materials, debris and rubbish from site and dispose of at a legal disposal area away from the site.

**PART 2 PRODUCTS**

**2.01 CLEANING MATERIALS AND EQUIPMENT**

- (A) Provide required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.
- (B) Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- (C) Use only those cleaning materials and methods recommended by manufacturer of surface material to be cleaned.
- (D) Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

**PART 3 EXECUTION**

**3.01 GENERAL PROGRESS CLEANING**

- (A) Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic or drainage, and providing required protection of materials.
- (B) Do not allow accumulation of scrap, debris, waste material, and other items not further required for construction of this work.
- (C) At least once each day, completely remove all scrap, debris, and waste material from inside the occupied building.
- (D) Provide adequate storage for all items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.

## 3.02 DUST CONTROL

- (A) Protect adjacent spaces from dust migration by means of plastic barricades during times when dust producing procedures are in progress (ex: sanding sheetrock). Maintain such plastic barricades until such time that interior cleaning has removed accumulated dust from the construction areas.
- (B) Protect existing HVAC system against intake of dust during dust producing procedures.
- (C) Protect fire alarm components such as smoke detectors from contamination by construction dust.
- (D) Clean interior spaces prior to start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- (E) Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.

## 3.03 FINAL CLEANING

- (A) Employ skilled workmen for final cleaning.
- (B) "Clean", for the purpose of this Article, and except as may be specifically provided otherwise, shall be interpreted as meaning the level of cleanliness generally provided by skilled cleaners using commercial quality building maintenance equipment and materials.
- (C) Remove all traces of soil, grease, mastic, waste materials, adhesives, dust, dirt, stains, smudges, fingerprints, labels, and other foreign materials from sight exposed surfaces.
- (D) Wash and polish glazing.
- (E) Polish surfaces requiring routine application of buffed polish, apply the polish recommended by the manufacturer of the material being polished.
- (F) Ventilating Systems:
  - 1. Clean permanent filters and replace disposable HVAC filters.
  - 2. Clean ducts, blowers and coils if units were operated without filters during construction.
- (G) In the event of stubborn stains not removable with water, the problem may require light sandblasting or other cleaning at no additional cost to the Owner.
- (H) Schedule final cleaning as approved by the Architect to enable the Owner to accept a completely clean Project.
- (I) Owner will assume responsibility for cleaning as of time designated on the Certificate of Substantial Completion for Owner's acceptance of Project or portion thereof; except for cleaning required due to execution of punch list items, which shall remain the responsibility of the General Contractor.

## END OF SECTION

**WARRANTY OF CONSTRUCTION****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (i) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier.
- (B) This warranty shall continue for a period of one year from the date of substantial completion of the work. If the Owner takes possession of any part of the work before substantial completion, this warranty shall continue for a period of one year from the date the Owner takes possession.
- (C) The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner controlled real or personal property, when that damage is the result of –
  - 1. The Contractor's failure to conform to contract requirements; or
  - 2. Any defect of equipment, material, workmanship, or design furnished.
- (D) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.
- (E) The Architect shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.
- (F) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.
- (G) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall –
  - 1. Obtain all warranties that would be given in normal commercial practice;
  - 2. Require all warranties to be executed, in writing, for the benefit of the Owner, if directed by the Architect; and
  - 3. Enforce all warranties for the benefit of the Owner, if directed by the Architect.
- (H) In the event the Contractor's warranty under paragraph (b) of this clause has expired, the Owner may bring suit at its expense to enforce a subcontractor's, or manufacturer's, or supplier's warranty.
- (I) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier, the Contractor shall not be liable for the repair of any defects of material or design furnished neither by the Owner nor for the repair of any damage that result from any defect in Owner-furnished material or design.
- (J) This warranty shall not limit the Owner's rights under this contract with respect to latent defects, gross mistakes, or fraud.

**PART 2 PRODUCTS (NOT REQUIRED)****PART 3 EXECUTION (NOT REQUIRED)****END OF SECTION**



## PROJECT CLOSEOUT

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) Provide an orderly and efficient transfer of the completed Project to the Owner.
- (B) Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Project.
- (C) Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these specifications. "Substantial Completion" is defined in the General Conditions.

## 1.02 QUALITY ASSURANCE

- (A) Prior to requesting inspection by the Architect, use adequate means to assure that the work is completed in accordance with the specified requirements and is ready for the requested inspection.

## 1.03 SUBSTANTIAL COMPLETION INSPECTION

- (A) Prepare and submit the list required by paragraph 9.8.2 of the General Conditions.
- (B) Within a reasonable time after receipt of the list but not more than 5 workdays, the Architect will inspect to determine status of completion.
- (C) Should the Architect determine that the work is not substantially complete:
  - 1. The Architect promptly will so notify the Contractor, in writing, giving the reasons in general therefore.
  - 2. The Contractor shall remedy the deficiencies and notify the Architect when ready for reinspection.
  - 3. The Architect will reinspect the Work.
- (D) When the Architect concurs that the work is substantially complete:
  - 1. The Architect will prepare a "Certificate of Substantial Completion" on AIA Form G704, accompanied by the Contractor's list of items to be completed or corrected, as verified by the Architect.
  - 2. The Architect will submit the Certificate to the Owner and to the General Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

## 1.04 FINAL INSPECTION

- (A) The contractor shall have a period of 15 days to complete outstanding work to be done after Substantial Completion in accordance with the General Conditions and the Supplemental Conditions.
- (B) Verify that the Work is complete including, but not necessarily limited to, the items mentioned in Paragraph 9.10 of the General Conditions.
- (C) Certify that:
  - 1. Contract Documents have been reviewed;
  - 2. Work has been inspected for compliance with the Contract Documents;
  - 3. Work has been completed in accordance with the Contract Documents;
  - 4. Equipment and systems have been tested as required, and are operational;
  - 5. Work is completed and ready for final inspection.
- (D) The Architect will make an inspection to verify status of completion.
- (E) Should the Architect determine that the work is incomplete or defective:

1. The Architect promptly will so notify the Contractor, in writing, that Final Completion has not been certified and list the incomplete or defective work.
  2. The Contractor shall remedy the deficiencies promptly, and notify the Architect when ready for re-inspection.
- (F) When the Architect determines that the work is acceptable under the Contract Documents, he will request the contractor to make closeout submittals (see *Project Closeout Submittals*)

1.05 REINSPECTION FEES

- (A) Should Architect perform reinspections due to failure of work to comply with claims of status of completion made by Contractor:
1. Owner will compensate Architect for such additional services.
  2. Owner will deduct amount of such compensation from final payment to Contractor.
  3. Architects Fee:
    - a) Time

Principle Architect	\$120/hr
Project Architect	\$ 75/hr
Architect's representative	\$ 75/hr

1.06 FINAL ADJUSTMENT OF ACCOUNTS

- (A) Submit a final statement of accounting to the Architect, showing all adjustments to the Contract Sum, including any outstanding cash allowance amounts.
- (B) If so required, the architect will prepare a final change order showing adjustments to the Contract Sum, which was not made previously by Change Orders.

**END OF SECTION**

## PROJECT CLOSEOUT SUBMITTALS

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) To provide an orderly and efficient transfer of the building and building component information to the Owner. Closeout submittals shall consist of:

1. Closeout, Warranty & Operation and Maintenance Documents

## 1.02 QUALITY ASSURANCE

- (A) Delegate the responsibility of collecting and maintaining required information of the Closeout Documents to one person from the Contractor's administrative staff.
- (B) All required copies of all project closeout submittals shall be forwarded to the Architect for review and approval. The Architect shall forward complete information required by this section to the Owner. Approval of these documents shall be considered as a pre-requisite for certification of Final Completion.

## 1.03 CONTRACTOR RESPONSIBILITY

- (A) Compilation and organization of the close-out documents with the information required and organization specified in this section are solely the responsibility of the General Contractor.
- (B) The Architect shall review the close-out documents ONCE at no cost to the General Contractor. **If the close-out documents are found deficient – in either content or organization – they will be returned to the General Contractor with a list of deficiencies to be corrected. All subsequent reviews by the Architect are subject to backcharge against the General Contractor at an hourly rate of \$75 per hour and direct postage charges for whatever efforts are required on behalf of the Architect to complete the review and approval of the close-out documents.**
- (C) Should Architect perform such additional subsequent review(s) of close-out documents, compensations shall be made as follows:
1. Owner will compensate Architect for such additional services.
  2. Owner will deduct amount of such compensation from final payment to Contractor.

## 1.04 CLOSEOUT , WARRANTY &amp; OPERATION AND MAINTENANCE DOCUMENTS

- (A) At the Final Completion of the project the General Contractor shall prepare one 3-ring binder titled with the name of the project and date. The binder shall be tabbed or otherwise color coded to distinguish between sections as listed below. The binder shall contain, in order, the following:

1. Section ONE:

- a) The General Contractor's name, address, telephone number, fax number and the name of the project manager or contact person representing the General Contractor.

2. Section TWO:

- a) When applicable evidence of compliance with requirements of governmental agencies having jurisdiction including, but not necessarily limited to:  
Certificates of Substantial Completion.  
Certificates of Occupancy, if applicable.

3. Section THREE:

- a) Consent of Surety to Final Payment: Submit on AIA Document G-707, latest edition.
- b) Contractor's Release of Liens: Conditioned upon receipt of final payment. Submit this release of liens in letterform on Contractor's letterhead in addition to on AIA Document G706A, latest edition.
- c) A letter from the General Contractor on the letterhead of the General Contractor, stating that no asbestos containing materials were used in the construction of the project. Suggested wording is as follows:  
"To the best of our knowledge, no asbestos containing materials were specified, supplied or installed in the referenced project."

4. Section FOUR:

- a) In order of division and following the order of the sections of these specifications, all warranty information specifically required by the sections of these specifications **All warranties should be identified with a sheet of paper stating the section title, section number, and paragraph and/or sub-paragraph number that the warranty is being submitted for. Each warranty should be identified in this manner.**

5. Section FIVE:

- a) In order of division and following the order of the sections of these specifications, provide catalogs, wiring and control diagrams, manufacturer's data, maintenance and operation instructions, parts lists on all devices, fixtures, machines, appliances, mechanical and electrical equipment, etc., for permanent maintenance records.

6. Section SIX:

- a) A log of all spare parts, extra materials, keys, keying schedule, or other components turned over to the owner as part of the requirements of the contract documents. This log shall specify the person(s) accepting these items on behalf of the Owner *with their signature and the date* the items were delivered. **Refer to the log at the end of this section.**

END OF SECTION

**GENERAL DEMOLITION (A)****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) The extent of demolition work is shown on the drawings and generally includes:
1. Dust control.
  2. Disconnecting and removing any existing utilities or services required.
  3. Removal of all debris.
- (B) General Contractor shall do all demolition, cutting, patching, removal of walls, wall facings, etc., indicated, specified or both. It shall be the general contractor's responsibility to examine all drawings and be personally familiar with the requirements of all trades as to the extent of the cutting and patching that will be necessary in all areas in addition to those shown on the architectural plans.
- (C) It shall be the general contractor's responsibility to personally visit the site to determine the locations and extent of existing partitions, walls, built-in items, utilities, nature of existing materials, finishes, and other conditions affecting the work.

**1.02 PROTECTION OF PUBLIC**

- (A) Provide temporary partition barriers to prohibit public from entering areas to be remodeled.
- (B) Provide for and be responsible for safety of the public throughout the duration of the contract.
- (C) Maintain all required fire exits and lanes, erect and maintain barriers, fences, rails, guards, caution lights, etc. as required by federal, state, or local laws and regulations to protect personnel and to ensure safety for the public.

**1.03 PROTECTION OF STRUCTURES AND SITE**

- (A) The general contractor shall exercise every care to protect the existing building and other structures and utilities that are designated to remain from damage, and shall replace and repair at no cost to the Owner, any damage that he may cause. Execute demolition work to insure property against damages which might occur from falling debris or other causes.

**1.04 PIPED UTILITIES**

- (A) When encountered in work or as indicated, protect existing active utility services, where required for proper execution of work, relocate or remove them as directed.
- (B) Where piped utilities are removed that are inactive, abandoned, or not in service, the open end of the piping shall be capped or plugged with concrete.
- (C) Where piped utilities are removed that are active; the contractor shall notify the utility company supplying that service of the intent of demolition and concur and cooperate with all requirements of that utility company for disconnecting service and capping piped utility lines.
- (D) If existing, active services are not indicated but are encountered, require protection or relocating, request from Owner in writing for determination and decisions prior to continuing work.
- (E) Do not proceed until written instructions are obtained.

**1.05 ELECTRICAL & TELECOMMUNICATION UTILITIES**

- (A) When encountered in work or as indicated, protect existing active utility services not

- indicated for demolition.
- (B) Where electrical or telecommunications utilities are removed that are active; the contractor shall notify the utility company supplying that service of the intent of demolition and concur and cooperate with all requirements of that utility company for disconnecting service and capping piped utility lines.
  - (C) If existing, active services are not indicated but are encountered, require protection or relocating, request from Owner in writing for determination and decisions prior to continuing work.
  - (D) Do not proceed until written instructions are obtained.
- 1.06 JOB CONDITIONS
- (A) Protection: Use all means necessary to protect existing objects designated to remain and, in the event of damage, immediately make all repairs and replacements necessary at no additional cost.
  - (B) Coordination and scheduling to be between Owner and Contractor to provide for minimum inconvenience and disturbance.

**PART 2 PRODUCTS****2.01 DUST CONTROL**

- (A) Dust control in general shall be designed to prevent dust from spreading into the existing areas, services, or facilities and to prevent dust from migrating from the immediate area of construction.

**2.02 TEMPORARY BARRICADES**

- (A) Unless otherwise specifically approved, use only new and solid lumber of utility grade or better to construct temporary barricades.
- (B) Barricades shall be constructed around all trees, structures or other items scheduled to remain that are subject to being damaged by normal operation of the demolition equipment on site.

**2.03 SALVAGE**

- (A) All salvage items that are scheduled for demolition shall become the property of the demolition contractor.

**PART 3 EXECUTION****3.01 REMOVAL OF DEBRIS**

- (A) All debris, waste and excessive materials shall be removed from the building and job site as it accumulates and be legally disposed of.
- (B) Removal and disposal of all materials shall be by licensed professionals by legally approved methods, at legally approved locations.

**END OF SECTION**

**FINISH CARPENTRY AND MILLWORK****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) Furnish all labor and materials necessary for the complete installation of all carpentry and millwork items required, indicated, specified or both. Furnish all laminate covered construction that is field fabricated, or is not furnished under Section, Architectural Woodwork (Casework). Furnish all labor for the outfitting and installation of all wood and metal doors and finish hardware.

**1.02 WORK NOT INCLUDED**

- (A) Shop built casework – see Architectural Woodwork (Casework)  
(B) Doors, hardware and accessories are furnished under other sections of the specifications.

**1.03 QUALITY ASSURANCE**

- (A) Installation of doors and door finishing hardware shall be by qualified personnel who have successfully installed doors and hardware in not less than five installations similar and equivalent to this project within the past three years. Qualified personnel shall provide a listing of these installations, complete with names and telephone numbers of references associated with these installations, upon request of the Architect.
- (B) Plywood:
1. All soft wood plywood shall bear DFPA grade - trademarks legibly applied to panel.
  2. Hardwood Plywood: Shall comply with Commercial Standards CS-35-61.
- (C) Lumber:
1. Grading of lumber of various species by American Lumber Standards.
  2. Hardwood lumber shall comply with the National Hardwood Lumber Association Grade Rules.

**1.04 PRODUCT HANDLING**

- (A) Immediately upon delivery to the job site, place materials in area protected from weather.
- (B) Store materials a minimum of 6" above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation or ventilation.
- (C) Do not store seasoned materials in wet or damp portions of building.
- (D) Protect sheet materials from corners breaking and damaging surfaces, while unloading.

**PART 2 PRODUCTS****2.01 FINISH WOOD**

- (A) Lumber for finish work for purpose listed shall be of grade specified. All lumber shall be dressed four sides to various dressed sizes.
1. Solid Stock Exposed in Cabinet Work, and where indicated #1 Birch.
- (B) Sizes, Patterns: Lumber surfaced four sides, dressed sizes of yard, structural lumber; Department of Commerce, Simplified Practice Recommendation R-16; tongued, grooved, shiplapped, or worked to such indicated patterns of as specified.
- (C) Moisture Content:
1. Dimension lumber and nominal 1" lumber shall be either air or kiln dried with a moisture content not over 19%.

2. Exterior and interior finishing lumber shall be either kiln or air dried. At the time of delivery to premises; moisture content not over 12% for material 1" or less thick, not over 14% for material over 1".
  3. Doors shall have a moisture content of not over 12%.
- 2.02 PLYWOOD
- (A) Plywood for interior use shall be of the following grade according to use:
    1. A/B interior grade fir veneered for all locations where exposed to view.
    2. B/C interior grade fir veneered for all locations concealed from view or covered.
- 2.03 LAMINATED PLASTIC SURFACES
- (A) Shall be Formica, Nevamar, Wilsonart, or approved substitution, high pressure laminated plastic sheet conforming to NEMA Standards. Grade: General purpose 0.050" thick for tops, backsplashes and for vertical surfaces. Color Selection: Colors, grain, and pattern shall be as selected by owner and architect.
- 2.04 HARDWARE
- (A) Use fasteners furnished with new to be installed. Where fasteners are not furnished with the item to be installed, use fasteners of suitable size and type to harmonize with the item to be installed as to material and finish and to suit the material to which fastened.
  - (B) Unless provided as outlined in paragraph 'A', provide all nails, screws, bolts, etc. as indicated or required. All fasteners exposed to view shall be stainless steel.

### PART 3 EXECUTION

- 3.01 GENERAL INSTALLATION
- (A) All work shall be installed and/or erected plumb, level and true.
  - (B) All joints of exposed finished woodwork shall be cut true and mitered having close, tight fitting joints securely glued together. All surfaces shall be well sanded, clean and left ready for staining or painting by others.
  - (C) Laminated plastic shall be bonded to surfaces with contact cement, installed according to manufacturer's recommendations and precautions.
  - (D) All other adhesives shall be nationally recognized water resistant glue applied in strict accordance with the manufacturer's recommendations and precautions.
- 3.02 GENERAL MILLWORK
- (A) Execute all carpentry in a substantial, workmanlike manner, in accordance with best standard practice.
  - (B) Assemble, fit, set finish carpentry and millwork accurately with all joints close, smooth, true, and all returns mitered. Join parts with concealed nails and screws, and with glued blocks where practicable. Where surface nailing is necessary, set nail heads and fill holes. Trim work bearing hammer marks will not be acceptable.
- 3.03 INSTALLATION OF DOORS AND FIELD INSTALLED OPENINGS IN DOORS
- (A) Field preparation of doors shall not violate the qualified testing and inspection agency label requirements for fire rated doors, in accordance with NFPA 80. Do not remove the qualified testing and inspection agency label.
  - (B) Comply with requirements of referenced standards and recommendations of NWWDA



pamphlet "How to Store, Handle, Finish, Install, and Maintain Wood Doors", as well as with manufacturer's instructions.

- (C) Provide all cut-outs and installation for glass, louvers, door grilles, etc. as is indicated or specified, but not supplied by door manufacturer. NOTE: No field cut-outs shall be allowed for any item other than standard door hardware in fire rated doors, unless specifically authorized by the Architect in writing.
- (D) Hang doors and install hardware when concrete work, plastering, tile setting, and other operations, which increased humidity and dust in building, have been completed.
- (E) All materials in areas where wood doors are to be hung shall be sufficiently dry so as to not affect the dimensional stability of the door.
- (F) Unless otherwise detailed or noted under the door specifications, fit all swing doors with 1/8-inch clearance at hinge stiles, 1/8-inch at top and lock or meeting stiles, and 3/4 inches maximum between bottom rail and floor.
- (G) Bevel lock edge and meeting stile of single acting doors 1/8-inch for each 2 inches of door thickness.
- (H) Immediately after fitting and cutting of doors for hardware, seal edges of doors with two coats of water resistant sealer.
- (I) Doors, including hardware shall be cleaned and adjusted to operate as designed without binding or deformation of the members. Doors shall be centered in the opening or frame and shall have all contact surfaces fit tight and even without forcing or warping the components.

#### 3.04 INSTALLATION OF DOOR HARDWARE

- (A) Both finish and builders hardware (as provided in other sections of this specification) shall be installed under this section. Consult relevant specification sections for detailed information on item and item installation.
- (B) Install hardware at the location (heights) specified in accordance with the manufacturer's printed instructions and in compliance with the Americans' with Disabilities Act requirements for handicapped accessibility. Where un-assigned, hardware heights shall be as follows:
 

1. Door Knob	38"
2. Door Pull	42"
3. Deadlock	48"
4. Exit Bolt Cross Bar	38"
5. Push Plate	50"
6. Butt Hinges	Bottom Hinge: Finish floor to bottom of hinge - 10"
	Top Hinge: Head rabbet to top of hinge - 5"
	Center Hinge: Equi-distant from top and bottom hinges.
- (C) Mortise wood doors for hardware using templates furnished under hardware sections of this specification.
- (D) Sinkages for lock fronts, strikes, hinges and similar items shall be same size as item installed.
- (E) Drill and tap screw holes in steel frames and doors for surface mounted hardware.
- (F) Use of shims will only be permitted at hinges where required to provide uniform clearance and alignment of door. Shims shall be cut from stainless steel sheet, same size as hinge.
- (G) Screws shall not be driven in place.
- (H) Hardware items shall be carefully fitted and securely attached to doors and frames.

**3.05 KEYS**

- (A) After the building is deemed substantially complete by the Architect; tag keys and deliver to the owner along with an affidavit certifying that locks and keying conform to all contract requirements. Installation of locks, which do not meet specified keying requirements, shall be considered sufficient justification for rejection and replacement of all locks installed on the project.

**3.06 CLEANING AND PROTECTION**

- (A) After installation, clean all surfaces, remove temporary labels, paint spots and other defacement. Clean prefinished and plated items and all items fabricated from stainless steel, aluminum and copper alloys, as recommended by the manufacturer.
- (B) Protect doors and hardware from damage until completion of the project.

**END OF SECTION**

**ARCHITECTURAL WOODWORK (CASEWORK)****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) Provide all labor, materials and equipment necessary for the complete rigid installation of all plywood core casework, countertops, backsplashes, filler panels and misc. laminate covered items and accessories as shown on the drawings and specified herein.
- (B) This work includes all modular units in increments of 1" in width. Special, custom and modified units may be furnished as an option.

**1.02 WORK NOT INCLUDED**

- (A) Rubber or vinyl base, general job-built millwork, floors or ceilings, plumbing and electrical work at cabinetry.

**1.03 QUALITY ASSURANCE**

- (A) Qualifications: The manufacturer shall be experienced in successfully producing architectural casework similar to that indicated for this project for a period of not less than 5 years.
- (B) Mock-up: Submit mock-up cabinets as follows:
  - 1. Submit one full-size base cabinet mock-up – 18" wide, complete with one drawer, door and adjustable shelf, complete with all cabinet hardware.
  - 2. Submit one full-size wall cabinet – 36" wide, complete with double doors, two adjustable shelves and all cabinet hardware.
  - 3. Mock-up to be fabricated in one of colors representative of colors selected for the project and shall be delivered to the job site and become the property of the Owner.
  - 4. Mock-up accepted by the Architect is to remain on the job site as a standard of quality.
- (C) Destructive verification of quality:
  - 1. The Architect reserves the right to remove any cabinet (base or wall), at any point during the construction, and have the general contractor break down the cabinet. Such action shall be to verify the construction of the cabinet meets this specification.
  - 2. Should this investigation verify the cabinet meets the specification then the casework supplier shall replace the destroyed cabinet(s) with the mock-up unit(s) at no additional cost to the Owner.
  - 3. Should this investigation reveal the cabinets do not meet the specification, then modifications acceptable to the architect shall be made to all installed cabinets; and uninstalled cabinets shall be modified by the supplier prior to installation.
  - 4. It shall be understood by the General Contractor and the casework supplier that such destructive testing shall be considered as a part of the contract and shall be executed without any cost to the Owner for direct expense, labor, or incidental expense (painting, caulking, etc.).

**1.04 SUBMITTALS**

- (A) **Color Selection:** Submit laminate chip chains, stain samples or color charts representing all available colors, stains, textures and pattern options of all finishes for the Architect's selection within 30 days from Notice to Proceed of the Contract. See part 2 of this specification for further detail.
- (B) The casework manufacturer shall furnish shop drawings giving all details and sizes, including methods of attachment and anything pertinent to the installation work as soon

as possible after the award of the Contract. He shall include full specification requirements.

- (C) Field Measurements: Check actual locations of walls and other construction to casework must fit by accurate field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work. Where field measurements cannot be made without delaying the work, guarantee dimensions with the contractor and proceed with fabricating products without field measurements. Coordinate construction to ensure that actual dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.
- (D) **The casework manufacturer and supplier shall keep aware of the progress of each phase of the project and shall make sure that shop drawings are furnished in adequate time so that the casework covered thereby can be fabricated and delivered in accordance with the scheduled completion for each phase.**
- (E) Submit sample warranty with shop drawings as described in the *WARRANTY* section below for approval of format and content.

#### 1.05 PRODUCT HANDLING

- (A) The casework specified under this section is prefinished, and precaution must be taken to protect it against damage during installation and until final acceptance.
- (B) Contractor shall be responsible for all quantities as shown on casework layouts on drawings.

#### 1.06 WARRANTY

- (A) All casework shall be guaranteed for a period of 5 years from manufacturer's defects and workmanship. Warranty information shall be submitted with the project close out documents.

### PART 2 MATERIALS

#### 2.01 MANUFACTURERS

- (A) Approved manufacturers of casework shall include:
  - Interior Wood Specialties, Inc (Elizabethtown, NC)
  - Professional Constructors Inc.(PCI) (Harleyville, SC)
  - Thompson Cabinets & Millworks (Murrells Inlet, SC)
  - Biggs Casework, Inc. (Florence, SC)
  - Carolina Millwork of Rockingham, Inc. (Rockingham, NC)
  - or approved substitution.

#### 2.01 MATERIALS

- (A) Counter Top High Pressure Plastic Laminate:
  - 1. High-pressure plastic laminate, V32 grade, satin, or textured finish .050 thickness for all countertop finishes. Color as selected from manufacturer stock standard patterns and solid colors.
- (B) Color Selection Available:
  - 1. Textured finish vertical surface grade from Formica, Nevamar, or Wilsonart standard stock colors and custom colors consisting of both wood grain patterns and solid colors.
  - 2. Heavy gauge natural colored backing sheet for balanced construction.
- (C) Solid Wood Stock components shall be white oak or birch.
- (D) Wood Veneers for veneer faced doors shall be rotary cut white oak veneer or rotary cut

birch veneer.

## 2.02 EDGING

- (A) Edging shall be hardwood nosings matching veneer species and clarity. Nosings shall be hot glue adhered.
- (B) Veneer tapes or woodgrain laminate strips are not acceptable.

## 2.03 HARDWARE

### (A) Hinges:

- 1. Butt hinge, nominal 3/4" x 2" leaf with three screws per leaf of hinge. Each hinge to have screws #7, 5/8" FHMS.
- 2. Two hinges per door to 36" in height. Three hinges per door to 70" in height and four hinges per door to 94" in height. Hinge to allow 270-degree swing.
- 3. Hinge finish for base bid to be dull chrome.
- 4. Hinge finish to be stainless steel

### (B) Pulls: 4" wire pull, stainless steel

### (C) Catches: Magnetic catch for base and wall cabinets. Provide two 6lb. pull catches at each tall cabinet door (>48"). Catch housing to be molded in putty color to match cabinet interior.

### (D) Drawer Slides:

- 1. Standard Drawers: Epoxy powder coated to match drawer body color. Captive nylon rollers both front and rear. Minimum 100 lb. dynamic load rating and self-closing. Metal drawer sides are not acceptable.
- 2. File Drawers: Full extension, 3 part progressive opening slide, minimum 100 lb., zinc plated or epoxy coated at manufacturer's option. Provide all file drawers with hanging file folder rails (see drawings).

### (E) Locks: Locks to be disc tumbler lock keyed alike and master keyed. Lock body to have a stainless steel finish. Hinged doors and drawers - National Lock No. M4-7054

- 1. Provide one lock for each drawer containing cash drawer insert.

## 2.04 CABINET ACCESSORIES

### (A) Cash Drawer Insert:

- 1. Approved manufacturers of cash drawer insert shall include:  
M-S Cash Drawer/Mondy Tray 1051-7 ( 5/4+2 )  
or approved substitution.
- 2. Cabinet supplier shall verify cabinet drawer clear dimensions are sufficient for cash drawer insert supplied.

### (B) Articulating Keyboard Tray

- 1. Approved manufacturers of articulating keyboard tray include:  
Humanscale 900 Standard keyboard tray system w/ 2G arm mechanism and foam palm rest.  
or approved substitution.
- 2. Cabinet supplier shall verify cabinet kneespace and mounting surface are sufficient in dimension and strength for installation and operation of articulating keyboard tray.

## 2.05 DETAILED REQUIREMENTS FOR CABINET MATERIALS

- (A) Construction of cabinets for Base Bid shall be AWI, Premium grade "AA" face veneer wood with matching hardwood edging. Quality level shall be 'Premium' as defined by the American Woodwork Institute, Quality Standards – 7th edition. Finish shall be

- transparent stain. Stain finish shall be field applied (see section *Painting*).
- (B) Cabinet Sub-Base: To be separate and continuous (no cabinet body sides-to-floor), semi-concealed fastening to cabinet bottom. Ladder type construction of front, back and intermediates to form a secure and level platform to which cabinets attach.
  - (C) Cabinet Top and bottom-Wall and Base:
    - 1. Base cabinet bottoms to be solid wood construction, 3/4" inch thick.
    - 2. Solid Sub-top to be 3/4" exterior grade plywood for all base cabinets.
    - 3. Exterior exposed wall cabinet bottoms to match exterior of cabinet.
  - (D) Cabinet Ends:
    - 1. 3/4" thick exterior grade plywood. Holes drilled for adjustable shelves 1-1/4" on center.
    - 2. Exposed exterior cabinet end to have wood face veneer.
  - (E) Fixed and Adjustable Shelves:
    - 1. Shelves inside base or wall cabinets shall be 3/4" plywood. Leading exposed edge of shelves to have hardwood edging to match.
    - 2. No shelving shall exceed 30" in width without intermediate supports.
  - (F) Cabinet Backs:
    - 1. Standard cabinet back to be 1/2" thick plywood for use on all cabinets with or without doors. Unexposed wall side of back to receive a continuous bead of elastic hot melt adhesive at joint between back and sides/top/bottom for sealing against moisture and further contribute to case rigidity.
    - 2. Exposed exterior backs to be 3/4" plywood veneer faced.
  - (G) Doors and Drawer Fronts: Plywood doors and drawers front to be 13/16-inches thick for all hinged and sliding doors. Core material to be 3/4" thick, plywood faced with wood veneer on exterior and interior. Drawer fronts and hinged doors are to overlay the cabinet body. Maintain a maximum 1/8" reveal between pairs of doors, between door and drawer front, or between multiple drawer fronts within the cabinet.
  - (H) Drawers:
    - 1. Drawer fronts shall be applied to separate drawer body component sub-fronts.
    - 2. Sides and back of drawers to be 1/2" thick plywood with solid hardwood bottom edge for added screw holding strength.
    - 3. Exposed top edge to be hardwood.
    - 4. Bottom edge of drawer sides to have solid hardwood edgeband 1/2" x 1/2" to prevent screw pullout on drawer slides.
    - 5. Drawer slides shall be doweled to receive front and back, machine squared and held under pressure while glued and pinned together.
    - 6. Drawer bottom to be plywood, 1/4" thick, housed and glued into front, sides and back. Underside of drawer to receive continuous bead of hot melt adhesive at joint between bottom, sides, front and back for sealing and rigidity.
    - 7. All drawers shall have roller guides as specified.
  - (I) Door/Drawer Spreaders: Provide a minimum 3/4" x 4-1/2" x full width plywood cabinet body spreaders immediately behind all door/drawer and multiple drawer horizontal joints to maintain exact body dimensions, and close off reveal. Front edge to be matching hardwood.
- 2.06 COUNTER TOPS
- (A) High-pressure .050 plastic laminate bonded to 1-1/2" thick exterior grade plywood core, except countertops containing sinks - entire counter top shall be double layer of 3/4" marine grade plywood with built-up edge. Underside to be properly balanced with heavy gauge backing sheet. Edges to be hardwood nosings matching veneer species and

clarity. Furnish counter tops in design as shown on drawings. Provide continuous tops for counter type cabinets fixed in a line. Plywood to run continuous from end to end of countertop.

#### 2.07 CABINETS ASSEMBLY

- (A) All exposed exterior vertical surfaces shall be finished with Premium grade "AA" face wood veneer.
- (B) All parts machined for accurate fit and assembled with hardwood dowels and adhesives to result in true, square, level and plumb units.
- (C) Verify dimensions of other trades to be built into casework.
- (D) End panels shall be doweled to receive bottom and top. Back panel shall be fully housed and continuously adhered into cabinet sides, top and bottom to insure rigidity and a fully closed cabinet.
- (E) Drawer bottom shall be fully housed into sides, back and subfront. Sides of drawer shall be doweled to receive drawer back, locked in fully to subfront, fastened with glue and mechanical fasteners.
- (F) Rear of cabinet back and underside of drawer bottom joints to receive a continuous bead of hot melt adhesive to add to unit body strength and develop moisture seal.
- (G) Scribe all tops and backsplashes to all other adjoining vertical surfaces.
- (H) There shall be a maximum scribe width of 2" at all cabinets abutting walls unless shown otherwise.
- (I) Provide removable back panels and closure panels for plumbing access where shown on drawings or required for access to valves.
- (J) Provide adequate spacing members at all knee spaces to prevent deflection of greater than L/120 with application of a 200-lb. load at center span.

#### 2.08 LAMINATE COVERED WINDOW SHELF

- (A) All laminate covered window sills shall be 3/4" thick exterior grade plywood. Cover horizontal surface of window sills with high pressure .050 plastic laminate bonded to the plywood substrate. Underside to be properly balanced with heavy gauge backing sheet. Edges to be high pressure plastic laminate to match horizontal surface color.

### PART 3 EXECUTION

#### 3.01 COORDINATION

- (A) Coordinate work of this section with related work of other sections necessary to obtain proper installation of all items in accordance with the scheduled completion for each phase.
- (B) Verify site dimensions of cabinet locations in building prior to fabrication.

#### 3.02 INSTALLATION

- (A) Approved shop drawings and installation instructions furnished by the manufacturer shall be strictly adhered to. Mechanics making the installation shall be experienced in this type work and capable of the highest quality of workmanship.
- (B) Counter tops and window sills shall be installed flush against the wall. Provide clear sealant at top and around end of horizontal surfaces where they meet wall surfaces.
- (C) The installer of the cabinet work shall make use of scribe panels to fit cabinet work into specific dimensions.

**3.03 FIELD QUALITY CONTROL**

- (A) All defective workmanship or damaged components shall be corrected repaired or replaced, as requested by the Architect, without further cost to the owner.
- (B) Cabinetry shall conform to AWI flatness criteria 400B-T-2 for "Premium" grade and to AWI gap tolerances criteria 400B-T-4 for "Premium" construction. Components found not to conform to these criteria on or before the time of substantial completion shall be replaced or corrected at no cost to the Owner.

**3.04 ADJUSTMENT**

- (A) Provide all door bumpers, drawer slides, etc., after installation to provide proper operation.
- (B) Erect casework straight, level and plumb and securely anchor in place. Field adjust all drawer and door faces to plumb and level as required, with uniform space between faces.

**3.05 CLEANING AND PROTECTION**

- (A) Exposed surfaces, edges drawer interiors and cabinet interiors shall be cleaned and all construction and installation marks re-moved prior to acceptance by owner.
- (B) Supplier of this equipment shall be responsible for the immediate removal and disposal of all trash, crating, etc.
- (C) Protect casework from damage until the completion of the project.
- (D) General Contractor is responsible for protection of casework from damage by other trades upon completion of installation by casework supplier.

**END OF SECTION**



## FIRESTOPPING

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) Provide all firestopping indicated, specified or required to maintain fire ratings and separations shown on the drawings by a single firestopping installer, meeting experience and material requirements of this specification. This includes, but is not limited to:
1. Penetrations through fire-resistance-rated floor and roof construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating item.
  2. Penetrations through fire-resistance-rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
  3. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.
  4. Sealant joints in fire-resistance rated construction.
- (B) EXTENT OF WORK
1. This is a boilerplate specification for any firestopping required at any penetrations in the rated wall adjacent to the construction area. Bidders should examine the work area to determine if firestopping will be required.

## 1.02 QUALITY ASSURANCE

- (A) Through-penetration firestop system products shall bear classification marking of qualified testing and inspecting agency.
- (B) Where non-UL recognized penetrations are encountered, the fire sealant provider shall provide engineering judgments on how to properly seal these penetrations to the desired rating. Such judgments shall be issued, signed and sealed by a professional engineer licensed to practice in the state of South Carolina.
- (C) Fire-Resistance Ratings of Joint Sealants: As indicated by reference to design designations listed by UL in their "Fire Resistance Directory" or by another qualified testing and inspecting agency. Joint sealants, including backing materials, bear classification marking of qualified testing and inspection agency.
- (D) Installer Qualifications: Engage an experienced Installer who has completed firestopping that is similar in material, design, and extent to that indicated for Project and that has performed successfully. Firestopping installer shall have a minimum of 5 years experience in installation of firestopping systems.
- (E) Single-Source Responsibility: Obtain through-penetration firestop systems for each kind of penetration and construction condition indicated from a single manufacturer.
- (F) Provide firestopping products containing no detectable asbestos as determined by the method specified in 40 CFR Part 763, Subpart F, Appendix A, Section 1, "Polarized Light Microscopy."
- (G) The following references shall be used as a standard of quality and performance for referenced firestopping unless these specifications mandate otherwise:
- American Society of Testing and Materials (ASTM):
- |               |  |
|---------------|--|
| C719-93(2005) | Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle) |
| C920-08       | Standard Specification for Elastomeric Joint Sealants  |
| E84-10        | Standard Test Method for Surface Burning Characteristics of  |

	Building Materials
E119-09c	Standard Test Methods for Fire Tests of Building Construction and Materials
E814-09	Standard Test Method for Fire Tests of Through-Penetration Fire Stops

### 1.03 PERFORMANCE CRITERIA REQUIREMENTS

- (A) General: Provide firestopping systems that are produced and installed to resist the spread of fire, according to requirements indicated, and the passage of smoke and other gases.
- (B) F-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with F ratings indicated, as determined per ASTM E814, but not less than that equaling or exceeding the fire-resistance rating of the constructions penetrated.
- (C) T-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with T ratings, in addition to F ratings, as determined per ASTM E814, where indicated and where systems protect penetrating items exposed to contact with adjacent materials in occupiable floor areas. T-rated assemblies are required where the following conditions exist:
  - 1. Where firestop systems protect penetrations located outside of wall cavities.
  - 2. Where firestop systems protect penetrations located outside fire-resistive shaft enclosures.
  - 3. Where firestop systems protect penetrations located in construction containing doors required to have a temperature-rise rating.
  - 4. Where firestop systems protect penetrating items larger than a 4-inch-diameter nominal pipe or 16 sq. in. in overall cross-sectional area.
- (D) Fire-Resistive Joint Sealants: Provide joint sealants with fire-resistance ratings indicated, as determined per ASTM E119, but not less than that equaling or exceeding the fire-resistance rating of the construction in which the joint occurs.

### 1.04 SUBMITTALS

- (A) Submit shop drawings detailing materials, installation methods, and relationships to adjoining construction for each through-penetration firestop system, and each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of qualified testing and inspecting agency evidencing compliance with requirements for each condition indicated.

### 1.05 PRODUCT HANDLING

- (A) Deliver firestopping products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agency's classification marking applicable to Project; curing time; and mixing instructions for multicomponent materials.
- (B) Store and handle firestopping materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

## PART 2 PRODUCTS

### 2.01 FIRESTOPPING, GENERAL

- (A) Compatibility: Provide firestopping composed of components that are compatible with

each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.

- (B) Accessories: Provide components for each firestopping system that are needed to install fill materials and to comply with "Performance Criteria Requirements" article in Part 1. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems. Accessories include but are not limited to the following items:
1. Permanent forming/damming/backing materials
  2. Temporary forming materials.
  3. Substrate primers.
  4. Collars.
  5. Steel sleeves.
- (C) For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.
- (D) For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
- (E) For floor penetrations with annular spaces exceeding 4 inches or more in width and exposed to possible loading and traffic, provide firestop systems capable of supporting the floor loads involved either by installing floor plates or by other means.
- (F) For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- (G) For firestopping exposed to view, provide products with flame-spread values of less than 25 and smoke-developed values of less than 450, as determined per ASTM E84.

## 2.02 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

- (A) Manufacturers: In compliance with paragraph 1.03 of this Section (Performance Criteria Requirements); approved systems and manufacturers shall include and be limited to the following:

Ceramic-Fiber and Mastic Coating: Ceramic fibers in bulk form formulated for use with mastic coating, and ceramic fiber manufacturer's mastic coating:

FireMaster Bulk / FireMaster 607 Bulk (Mastic)	Thermal Ceramics <a href="http://www.thermalceramics.com">www.thermalceramics.com</a>
--	--

Ceramic-Fiber Sealant:

Metacaulk 525

The RectorSeal Corporation  
[www.rectorseal.com](http://www.rectorseal.com)

or approved substitution

Endothermic, Latex Sealant:

Fyre-Shield

Tremco Inc  
[Www.tremcosealants.com](http://Www.tremcosealants.com)

or approved substitution

Endothermic, Latex Compounds:

FlameSafe FS 900+

Grace Construction Products  
[www.na.graceconstruction.com](http://www.na.graceconstruction.com)

or approved substitution

Intumescent Latex Sealant:

Metacaulk 950

The RectorSeal Corporation  
[www.rectorseal.com](http://www.rectorseal.com)

Fire Barrier CP 25WB Caulk

3M [www.3m.com](http://www.3m.com)

or approved substitution  
Intumescent Putty:  
Pensil 500 Intumescent Putty

FlameSafe FSP 1000 Putty

Fire Barrier Moldable Putty  
FS-ONE

or approved substitution  
Intumescent Wrap Strips:  
Fire Stop Intumescent Wrap Strip 2002

Intumescent Wrap Strip

Fire Barrier FS-195 Wrap/Strip  
or approved substitution  
Job-Mixed Vinyl Compound:  
FIRECODE Brand Compound  
or approved substitution

Mortar:  
BIO K-10+ Fire Rated Mortar  
  
FlameSafe FSM 22 Mortar Seal

or approved substitution  
Pillows/Bags:  
Bio Firestop Pillows

FlameSafe Pillows

FlameSafe Bags

or approved substitution  
Silicone Foams:  
3M Fire Barrier 2001 Silicone Foam  
Dow Corning Fire Stop Foam 2001

Pensil 200 Firestop Foam (PEN200)

or approved substitution  
Silicone Sealants:  
3M Fire Barrier 2000  
3M Fire Barrier 2003  
Dow Corning Firestop Sealant 2000  
  
Dow Corning Firestop Sealant SL 2003  
  
Series PEN300 Silicone Sealant

General Electric Company  
[www.geadvancedmaterials.com](http://www.geadvancedmaterials.com)  
Grace Construction Products  
[www.na.graceconstruction.com](http://www.na.graceconstruction.com)  
3M [www.3m.com](http://www.3m.com)  
Hilti Construction Chemicals, Inc.  
[www.us.hilti.com](http://www.us.hilti.com)

Dow Corning Corp.  
[www.dowcorning.com](http://www.dowcorning.com)  
Hilti Construction Chemicals, Inc.  
[www.us.hilti.com](http://www.us.hilti.com)  
3M [www.3m.com](http://www.3m.com)

USG Corp. [www.usg.com](http://www.usg.com)

Bio Fireshield, Inc.  
[www.biosheild.com](http://www.biosheild.com)  
Grace Construction Products  
[www.na.graceconstruction.com](http://www.na.graceconstruction.com)

Bio Fireshield, Inc.  
[www.biosheild.com](http://www.biosheild.com)  
Grace Construction Products  
[www.na.graceconstruction.com](http://www.na.graceconstruction.com)  
Grace Construction Products  
[www.na.graceconstruction.com](http://www.na.graceconstruction.com)

3M [www.3m.com](http://www.3m.com)  
Dow Corning Corp.  
[www.dowcorning.com](http://www.dowcorning.com)  
Specified Technologies, Inc. (STI)  
[www.stifirestop.com](http://www.stifirestop.com)

3M [www.3m.com](http://www.3m.com)  
3M [www.3m.com](http://www.3m.com)  
Dow Corning Corp.  
[www.dowcorning.com](http://www.dowcorning.com)  
Dow Corning Corp.  
[www.dowcorning.com](http://www.dowcorning.com)  
Specified Technologies, Inc. (STI)

Pensil 100	<a href="http://www.stifirestop.com">www.stifirestop.com</a> General Electric Company
Metacaulk 835+	<a href="http://www.geadvancedmaterials.com">www.geadvancedmaterials.com</a> The RectorSeal Corporation
Metacaulk 880	<a href="http://www.rectorseal.com">www.rectorseal.com</a> The RectorSeal Corporation
Fyre-Sil	<a href="http://www.rectorseal.com">www.rectorseal.com</a> Tremco Inc
Fyre-Sil S/L	<a href="http://www.tremcosealants.com">www.tremcosealants.com</a> Tremco Inc
or approved substitution	<a href="http://www.tremcosealants.com">www.tremcosealants.com</a>
Solvent-Release-Curing Intumescent Sealants:	
BIOSTOP 500+ Intumescent Firestop Sealant	Bio Fireshield, Inc <a href="http://www.biosheild.com">www.biosheild.com</a>
Fire Barrier CP 25N/S Caulk	3M <a href="http://www.3m.com">www.3m.com</a>
Fire Barrier CP 25S/L Caulk	3M <a href="http://www.3m.com">www.3m.com</a>
or approved substitution.	

### 2.03 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS

- (A) Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that complies with ASTM C920 requirements, including those referenced for Type, Grade, Class, and Uses, and requirements specified in this Section applicable to fire-resistive joint sealants.
- (B) Sealant Colors: Provide color of exposed joint sealants from manufacturer's full range of standard colors for products of type indicated.
- (C) Single-Component, Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, G, A, and (as applicable to joint substrates indicated) O. Provide sealant with the capability to withstand the following percentage changes in joint width existing at time of installation, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C719, and remain in compliance with other requirements of ASTM C920 for uses indicated:
- 50 percent movement in both extension and compression for a total of 100 percent movement.
- (D) Multicomponent, Nonsag, Urethane Sealant: Type M; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, A, and (as applicable to joint substrates indicated) O. Additional Movement Capability: Provide sealant with the capability to withstand the following percentage change in joint width existing at time of installation, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C719, and remain in compliance with other requirements of ASTM C920 for uses indicated:
- 40 percent movement in extension and 25 percent in compression for a total of 65 percent movement.
- (E) Single-Component, Nonsag, Urethane Sealant: Type S; Grade NS; Class 25; and Uses NT, M, A, and (as applicable to joint substrates indicated) O.
- (F) Manufacturers: In compliance with paragraph 1.03 of this Section (Performance Criteria Requirements); approved systems and manufacturers include:
- Single-Component, Neutral-Curing, Silicone Sealant:
- |   |                         |
|---|-------------------------|
| Dow Corning 790 Silicone Building Sealant | Dow Corning Corporation |
|---|-------------------------|

Dow Corning 795 Silicone Building Sealant	<a href="http://www.dowcorning.com">www.dowcorning.com</a> Dow Corning Corporation
Silpruf	<a href="http://www.dowcorning.com">www.dowcorning.com</a> General Electric Company
Ultraglaze SSG4800J	<a href="http://www.geadvancedmaterials.com">www.geadvancedmaterials.com</a> General Electric Company
864 Silicone Adhesive/Sealant	<a href="http://www.geadvancedmaterials.com">www.geadvancedmaterials.com</a> Pecora Corporation
or approved substitution	<a href="http://www.pecora.com">www.pecora.com</a>
Multicomponent, Nonsag, Urethane Sealant: Vulkem 922	Tremco Inc <a href="http://www.tremcosealants.com">www.tremcosealants.com</a>
DynaFlex	Pecora Corporation <a href="http://www.pecora.com">www.pecora.com</a>
DynaTred	Pecora Corporation <a href="http://www.pecora.com">www.pecora.com</a>
Dynatrol II	Pecora Corporation <a href="http://www.pecora.com">www.pecora.com</a>
Sikaflex-2c NS	Pecora Corporation <a href="http://www.pecora.com">www.pecora.com</a>
Sonolastic NP 2	Sika Corporation <a href="http://www.sikaconstruction.com">www.sikaconstruction.com</a>
Dymeric 240/240FC	BASF Building Systems <a href="http://www.BASFbuildingsystems.com">www.BASFbuildingsystems.com</a>
or approved substitution	Tremco Inc <a href="http://www.tremcosealants.com">www.tremcosealants.com</a>
Single-Component, Nonsag, Urethane Sealant: Isoflex 880 GB	LymTal International, Inc <a href="http://www.lymtal.com">www.lymtal.com</a>
Isoflex 881	LymTal International, Inc <a href="http://www.lymtal.com">www.lymtal.com</a>
Vulkem 921	Tremco Inc <a href="http://www.tremcosealants.com">www.tremcosealants.com</a>
Sikaflex-15 LM	Sika Corporation <a href="http://www.sikaconstruction.com">www.sikaconstruction.com</a>
or approved substitution.	

## 2.04 MIXING

- (A) For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

**PART 3 EXECUTION**

## 3.01 EXAMINATION

- (A) Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other

conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

- (B) Environmental Conditions: Do not install firestopping when ambient or substrate temperatures are outside limits permitted by firestopping manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- (C) Ventilation: Ventilate firestopping per firestopping manufacturers' instructions by natural means or, where this is inadequate, forced air circulation.

### 3.02 PREPARATION

- (A) Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:
  - 1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.
  - 2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.
  - 3. Remove laitance and form release agents from concrete.
- (B) Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- (C) Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing firestopping's seal with substrates.

### 3.03 INSTALLING THROUGH-PENETRATION FIRESTOPS

- (A) Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- (B) Install fill materials for through-penetration firestop systems by proven techniques to produce the following results:
  - 1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.
  - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  - 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### 3.04 INSTALLING FIRE-RESISTIVE JOINT SEALANTS

- (A) Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire-resistance rating required.
- (B) Install sealants by proven techniques that result in sealants directly contacting and fully

wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.

- (C) Tool nonsag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire-resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

### 3.05 CERTIFICATION OF NON-UL IDENTIFIED PENETRATION PROTECTION

- (A) Where an existing condition does not comply directly with a U.L. designation for penetration protection, an engineering judgment from the manufacturer of the fire sealant should be issued.
- (B) Such engineering judgments shall be by a professional engineer licensed to practice engineering in the state of South Carolina.

### 3.06 CLEANING AND PROTECTION

- (A) Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which opening and joints occur.
- (B) Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to produce firestopping complying with specified requirements.

**END OF SECTION**



## CAULKING AND SEALANTS

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) Furnish labor and material necessary to complete interior caulking and exterior waterproofing of all joints.
- (B) Caulking compound shall apply only to materials and work in connection with the filling or closing of interior joints where filling and closing of these interior joints is primarily for appearance. Use caulking on interior joints where no movement over 8% occurs, no water is expected, and no fire rating is required.
- (C) Sealant shall apply to materials and work to seal and make watertight all joints on the exterior of the building, and joints on the interior of the building that may be expected to expand and contract. Use sealants in joints where total movement over 8% is expected.

## 1.02 WORK NOT INCLUDED

- (A) Firestopping penetrations as identified under *Firestopping*.
- (B) Glazing caulking and sealants as identified under *Glass and Glazing*.

## 1.03 QUALITY ASSURANCE

- (A) The following references shall be used as a standard of quality and performance for referenced caulking and sealants unless these specifications mandate otherwise:  
American Society of Testing and Materials (ASTM):
    - C717-09 Standard Terminology of Building Seals and Sealants
    - C719-93(2005) Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)
    - C834-10 Standard Specification for Latex Sealants
    - C919-08 Standard Practice for Use of Sealants in Acoustical Applications
    - C920-08 Standard Specification for Elastomeric Joint Sealants
    - C1193-09 Standard Guide for Use of Joint Sealants
    - C1311-10 Standard Specification for Solvent Release Sealants
    - D1056-07 Standard Specification for Flexible Cellular Materials-Sponge or Expanded Rubber
  - (B) Installer Qualifications & Single Source Responsibility:
    - 1. Engage an experienced Installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.
    - 2. Obtain joint sealant materials from a single manufacturer for each different product required.
- 1.04 SUBMITTALS
- (A) Complete product data sheets clearly identifying all materials and locations where they are proposed for use in the project shall be submitted for approval. Manufacturer's data sheets shall include warranty information for each product submitted.
- 1.05 PRODUCT HANDLING
- (A) Deliver materials to project site in original unopened containers or bundles with labels

indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.

- (B) Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

## PART 2 PRODUCTS

### 2.01 GENERAL

- (A) Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- (B) Colors: Provide colors of exposed unpainted caulking and exterior joint sealers as selected by the Architect from manufacturer's full range of custom colors to match adjacent construction.

### 2.02 INTERIOR CAULKING

- (A) Interior caulking compound shall be Architectural Grade Non-Shrink elastic caulking compound conforming to Fed. Spc. A-A-272A, *Caulking Compounds*.

### 2.03 ELASTOMERIC JOINT SEALANTS

- (A) Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with referenced ASTM C920 requirements.
- (B) One-Part Mildew-Resistant Silicone Sealant: ASTM C920, Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide; intended for sealing interior joints with nonporous substrates and subject to in-service exposure to conditions of high humidity and temperature extremes.
- (C) One-Part Exterior Grade Silicone Building Sealant: - ASTM C920, Type S, Grade NS, Class 25, Uses T, NT, M, G, A, O as appropriate.
- (D) Multi-Part Nonsag Urethane Sealant for Use NT: Type M, Grade NS, Class 25.
- (E) Multi-Part Pourable Urethane Sealant for Use T: Type M, Grade P, Class 25.
- (F) One-Part Nonsag Urethane Sealant for Use NT: Type S; Grade NS; Class 25.

### 2.04 LATEX JOINT SEALANTS

- (A) Acrylic-Emulsion Sealant: Manufacturer's standard, one part, nonsag, mildew-resistant, acrylic-emulsion sealant complying with ASTM C834, formulated to be paintable and recommended for exposed applications on interior and on protected exterior locations involving joint movement of not more than plus or minus 5 percent.

### 2.05 MISCELLANEOUS JOINT SEALANTS

- (A) Compressible Tape Sealant: Manufacturer's standard, solvent-free, butyl-polyisobutylene tape sealant with a solids content of 100 percent; complying with AAMA 804.1; formulated to be nonstaining, paintable, and nonmigrating in contact with nonporous surfaces; packaged on rolls with a release paper on one side; with or without reinforcement thread to prevent stretch.

## 2.06 COMPRESSION SEALS

- (A) Preformed Foam Sealant: Manufacturer's standard preformed, precompressed, impregnated open-cell foam sealant manufactured from high-density urethane foam impregnated with a nondrying, water repellant agent; factory-produced in precompressed sizes and in roll or stick form to fit joint widths indicated and to develop a watertight and airtight seal when compressed to the degree specified by manufacturer. The performed seal shall be permanently elastic, mildew-resistant, nonmigratory, nonstaining, and compatible with joint substrates and other joint sealers. Backing shall be pressure sensitive adhesive, factory applied to one side, with protective wrapping.
- (B) Acceptable preformed foam sealants shall include and be limited to the following manufacturers and products:
- |                 |   |
|-----------------|---|
| Emseal Greyflex | Emseal Corp.                                |
| Will-Seal       | Wil-Seal Construction Foams Div., Illbruck. |
| York-Seal       | York Manufacturing, Inc.                    |
- or approved substitution
- (C) Premoulded Filler Strip: Manufacturer's standard preformed expanded, closed cell polychloroprene joint filler material complying with ASTM D1056, Grade SCE and with requirements indicated for size and profile.

## 2.07 JOINT SEALANTS FOR PAVING

- (A) Two-Part Cold-Applied Sealant: Manufacturer's standard, pourable, chemically curing, elastomeric sealant complying with Fed. Spec. SS-S-200E(2), *Sealants, Joint, Two-Component, Jet-Blast Resistant, Cold-Ap*, and of the following formulation for base polymer. Urethane formulation complying with ASTM C920 with maximum movement capability of plus or minus 12-1/2 percent.

## 2.08 JOINT SEALANT BACKING

- (A) General: Provide sealant backings of material and type which are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- (B) Backer Rod: Preformed, compressible, resilient, nonwaxing, nonextruding strips of flexible, nongassing plastic foam of material indicated below; nonabsorbent to water and gas; and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance. Backer rod may be either open-cell polyurethane foam or closed-cell polyethylene foam, unless otherwise indicated, subject to approval of sealant manufacturer, for cold-applied sealants only.
- (C) Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

## 2.09 MISCELLANEOUS MATERIALS

- (A) Primer: Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealer-substrate tests and field tests.

- (B) Cleaners for Nonporous Surfaces: Provide nonstaining, chemical cleaners of type which are acceptable to manufacturers of sealants and sealant backing materials, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.
- (C) Masking Tape: Provide nonstaining, nonabsorbent type compatible with joint sealants and to surfaces adjacent to joints.

#### 2.10 APPLICATION SCHEDULE

- (A) Multi-Part Nonsag Urethane for Use NT: Exterior joints in vertical surfaces and nontraffic horizontal surfaces including:
  - 1. Control and expansion joints in cast-in-place concrete.
  - 2. Perimeter joints at architectural precast concrete units.
  - 3. Control and expansion joints in unit masonry.
  - 4. Joints between different materials listed above.
  - 5. Perimeter joints between materials listed above and frames of doors and windows.
  - 6. Control and expansion joints in soffit and overhead surfaces.
  - 7. Other dynamic joints (with plus or minus 25% movement) as indicated.
- (B) One-Part Mildew-Resistant Silicone Sealant:
  - 1. Perimeter joints of toilet fixtures.
  - 2. Other joints in moist or humid locations as directed the Architect.
- (C) Acrylic-Emulsion Sealant:
  - 1. Non-dynamic joints (less than 12-1/2% movement) in interior building materials such as finish carpentry and architectural woodwork components.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- (A) Examine joints indicated to receive joint sealers, with Installer present, for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance.
- (B) Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer or below 40 deg F (4.4 deg C), or when joint substrates are wet.
- (C) Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.
- (D) Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

#### 3.02 PREPARATION

- (A) Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
  - 1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; old joint sealers; oil; grease; waterproofing; water repellants; water; surface dirt; and frost.
  - 2. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint

substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

3. Remove laitance and form release agents from concrete.
4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile; and other nonporous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.

(B) Joint Priming:

1. Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond; do not allow spillage or migration onto adjoining surfaces.

(C) Masking Tape:

1. Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF CAULKING AND JOINT SEALANTS

- (A) The mixing and application of all caulking compounds and sealants shall be in strict accordance with the manufacturer's instructions applicable to products and applications indicated, except where more stringent requirements apply.

- (B) Gun Application: Caulking compounds and sealants shall be applied using an approved type of gun, with nozzles of the sizes required to fit the several widths of joints. Caulking compounds and sealants shall be forced into the joint grooves with sufficient pressure to force out all air and to fill the grooves solidly. Sealing around all openings shall include the entire perimeter of the openings. Any excess material shall be neatly removed. Where caulking is to be painted, seal to prevent bleeding through paint.

- (C) Caulking Installation: All joints where caulking is to be applied in excess of 1/2" in depth, shall be packed with backing filler to within 1/2" from face to surface. The caulking width and depth in relation to joint movement shall be as recommended by manufacturer.

- (D) Installation of Sealant Backings: Install sealant backings to comply with the following requirements:

1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability. Do not leave gaps between ends of joint fillers. Do not stretch, twist, puncture, or tear joint fillers.
2. Remove absorbent joint fillers which have become wet prior to sealant application and replace with dry material.
3. Install bond breaker tape between sealants and joint fillers, compression seals, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.
4. Install compressible seals serving as sealant backings to comply with requirements indicated above for joint fillers.

- (E) Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative

- to joint widths which allow optimum sealant movement capability.
- (F) Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer. Provide concave joint configuration per Figure 6A in ASTM C1193, unless otherwise indicated.
  - (G) Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, and to comply with sealant manufacturer's directions for installation methods, materials, and tools which produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in conformance with sealant manufacturer's recommendations.
- 3.04 CLEANING
- (A) Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.
- 3.05 PROTECTION
- (A) Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of substantial completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

**END OF SECTION**

## STEEL DOOR / WINDOW FRAMES

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) Furnish necessary labor and materials for hollow metal steel door frames indicated, specified or both. The terms relating to steel door frames shall be as defined in ANSI/SDI A250.7 and as specified.

## 1.02 QUALITY ASSURANCE

- (A) The publications listed below form a part of this specification and are considered minimum standards of quality unless noted or specified otherwise.

American National Standard Institute (ANSI); Door and Hardware Institute (DHI), (Copyrighted Society); The Steel Door Institute (SDI) (Copyrighted Society):

A250.6-2003 Hardware on Standard Steel Doors (Reinforcement & Application)

A250.7-1997 Nomenclature: Standard Steel Doors and Frames, ANSI/SDI

A250.8-2003 Recommended Specifications for Standard Steel Doors and Frames

A250.10-2004 Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames, ANSI/SDI

A250.11-2001 Recommended Erection Instructions for Steel Frames

American Society for Testing and Materials (ASTM):

A167-99 (2009) Standard Specification for Stainless & Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip

A240/A240M-10 Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

A568/A568M-09a Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for

A653/A653M-09a Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

A1008/A1008M-10 Standard Specifications for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability

D1621-04a Standard Test Method for Compressive Properties of Rigid Cellular Plastics

E90-09 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

E2016-06 Standard Specification for Industrial Woven Wire Cloth

E2047-05 Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies

The National Association Architectural Metal Manufacturers (NAAMM):

Hollow Metal Manual (Latest Edition)

Metal Finishes Manual (Latest Edition)

National Fire Protection Association (NFPA):

NFPA 80 Standard for Fire Doors, Fire Windows, 1999 Edition

NFPA 252 Standard Methods of Fire Tests for Door Assemblies, 1995 Edition

Underwriters' Laboratory (UL):

### 1.03 SUBMITTALS

- (A) Product Data: Manufacturer's data sheet and specification.
- (B) Shop Drawings: Include schedule identifying each unit, with door marks or numbers referencing drawings. Provide shop drawings showing size, shape, gauge of metal and method of anchoring of all items specified in this section for approval. Clearly illustrate all types of doors, frames and related components, showing complete construction, anchorage and relation to adjacent building construction.
- (C) Certificates: Product certificates signed by the manufacturer certifying material compliance with ANSI A250.8, specified performance characteristics and criteria, and physical requirements.
- (D) Submit manufacturer's literature and data on all fire rated doors and frames, showing conformance with NFPA 80 and Underwriters Laboratory, Inc.
- (E) Submit manufacturer's printed installation instructions.

### 1.04 PRODUCT HANDLING

- (A) Prior to shipment label each door and frame to show location, size, and other pertinent information. Deliver, store, and handle hollow metal work in manner to prevent damage, rust and deterioration.
- (B) Follow special storage and handling requirements of manufacturer.
- (C) Fasten temporary steel spreaders across the bottom of each door frame.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- (A) Manufacturers: Acceptable door frame manufacturers shall include and be limited to the following:

Allied Steel	1-800-289-7833	<a href="http://www.aliedsteel.com">www.aliedsteel.com</a>
Steelcraft Company	1-800-930-8585	<a href="http://www.steelcraft.com">www.steelcraft.com</a>
Ceco Door Products	1-888-232-6366	<a href="http://www.cecodoor.com">www.cecodoor.com</a>
Palmetto Metal Products, Inc.	1-803-783-4527	
Amweld Building Products	1-330-527-4385	<a href="http://www.amweld.com">www.amweld.com</a>
Mesker	1-256-851-6670	<a href="http://www.meskerdoor.com">www.meskerdoor.com</a>
Republic Builders Products	1-800-733-3667	<a href="http://www.republicdoor.com">www.republicdoor.com</a>
or approved substitution		

### 2.02 HOLLOW METAL DOOR FRAMES - MATERIALS

- (A) Sheet Steel: ASTM A1008/A1008M, cold-rolled, stretcher leveled degree of flatness for panels (face sheets) of doors and panels.
- (B) Anchors, Fastenings and Accessories Fastenings anchors, clips connecting members and sleeves from steel conforming to ASTM A653/A653M, zinc coated.
- (C) Prime Paint: Paint that meets or exceeds the requirements of ANSI/SDI A250.10.
- (D) Stainless Steel: ASTM A167, Type 302 or 304; finish, NAAMM Number 4.

### 2.03 FABRICATION, GENERAL

- (A) Fabricate of cold-rolled steel sheets.
- (B) Steel hollow metal door frames at interior locations shall be A60 steel or G60 galvanized.
- (C) Clearances Between Doors and Frames and Floors:



1. Doors shall have a maximum 1/8-inch clearance at the jambs, heads, and meeting stiles and a 3/4-inch clearance at the bottom except as otherwise specified.
  2. Maximum clearance shall be 3/8-inch at bottom of sound rated doors, light-proofed doors, doors to operating rooms, and doors designated to be fitted with mechanical seals.
- (D) Hardware Cutouts and Mortises:
1. Use templates for factory preparation of doors and frames to receive hardware. Locate cutouts and mortises for hardware to provide installed hardware at heights (heights measured from finished floor) as follows:
    - a) Exit devices: Centerline of strike (where applicable) 40-5/16 inches.
    - b) Lock sets and latch sets: Centerline of strike 40-5/16 inches.
    - c) Deadlocks: Centerline of strike 48 inches except as otherwise specified.
    - d) Centerline of deadlock strike to be 33 inches when used with push-pull latch.
    - e) Other hardware shall be located at standard commercial heights.
- (E) Doors and frames shall be cut, reinforced, drilled and tapped at factory for application of hardware.
- (F) Drilling & tapping for application of surface applied hardware may be done in the field.
- (G) Loose Glazing Stops or Beads:
1. Form from 0.032-inch thick steel with mitered corner joints unless shown or noted otherwise.
  2. Secure with screws spaced two-inches from corner and not over 12-inches apart.
  3. Snap-on attachments are not permitted.

#### 2.04 METAL FRAMES

- (A) Metal frames shall be of the designs and sizes shown on the drawings. Frames shall be of the combination type with the trim and stops formed as an integral part of the frame. Profiles shall be press brake-formed true and sharp with head and jambs accurately mitered, continuously welded and ground smooth.
- (B) Frames shall be the best quality full cold rolled furniture steel. All door jambs shall rest on building floor slab construction and shall have 14 gauge floor angles welded to jambs for floor anchorage.
- (C) Door frames for openings 3'-6" wide and over shall be constructed of 14 gauge steel; all other door shall be 16 gauge (0.0635"). All hollow metal window frames shall be 16 gauge (0.0635"). All corners shall be mitered and welded to insure a rigid joint. Locate anchors near top and bottom of jambs and at intermediate points not over 24" apart.
- (D) Frames shall be accurately mortised, reinforced, drilled and tapped for finish hardware. Reinforcing for hardware shall be welded at the frame assembly. Use 3/16 plate reinforcement for all hinge reinforcement and closure bracket reinforcement. Furnish 9 gauge reinforcement for all other surface applied hardware. Dust cover shall be welded over all punched openings and reinforcements to prevent clogging of tapped holes or openings.
- (E) Punch lock side of stop for single doors at three points and at four points on stop at head section for pairs of doors to receive door silencers.
- (F) All frames for labeled doors to carry corresponding Underwriters' Label.
- (G) Floor Frame Anchors:
1. Where floor fills occur, provide extension type floor anchors to compensate for the depth of the fill.
  2. At the bottom of the jamb, use 0.053-inch thick steel clip angles welded to jamb and drilled to receive two 1/4-inch floor bolts. Use two-inch by two-inch by 3/8-inch clip angle

- for lead lined frames, drilled for 3/8-inch floor bolts.
3. Where mullions occur, provide 0.093-inch thick steel channel anchors, drilled for two 1/4-inch floor bolts and frame anchor screws.
  4. Where sill sections occur, provide continuous 0.042-inch thick steel rough bucks drilled for 1/4-inch floor bolts and frame anchor screws. Space floor bolts at 24 inches on center.
- (H) Jamb anchors:
1. Locate anchors on the jambs near the top and bottom of each frame, and at intermediate points not over 24 inches apart, except for fire rated frames space anchors as required by labeling authority.
  2. Form jamb anchors of not less than 0.042-inch thick steel unless otherwise specified.
- (I) Anchors set in masonry: Use adjustable anchors designed for friction fit against the frame and for extension into the masonry not less than 10 inches. Use either wire loop type of 3/16-inch dia. wire, or T-shape or strap & stirrup type of corrugated or perforated sheet steel.
- (J) Anchors for stud partitions: Either weld to frame or use lock-in snap-in type. Provide tabs for securing anchor to the sides of the studs, except for wire studs.
- (K) Anchors for frames set in prepared openings:
1. Steel pipe spacers with 1/4-inch inside diameter welded to plate reinforcements at the jamb stops or hat shaped formed strap spacers, two inches wide, welded to jamb near stop.
  2. Drill jamb stop and strap spacers to allow 1/4-inch flat head bolts to pass through the frame and spacers.
  3. Two piece frames shall have subframe or rough buck drilled for 1/4-inch bolts.
- (L) Anchors for observation windows and other continuous frames set in stud partitions:
1. In addition to the jamb anchors, weld clip anchors to the sills and heads of continuous frames over four-feet long.
  2. Anchors spaced 24 inches on centers maximum.
- (M) Modify frame anchors to fit special frame and wall construction and provide special anchors where shown or required. Where special frame anchors are proposed by the manufacturer that deviate from the conditions specified above, these anchoring details shall be illustrated in the shop drawings and clearly identified as 'special frame anchorage condition'.
- 2.05 SHOP PAINTING
- (A) After fabrication is completed, dress, bonderize and sand as required to make exposed surfaces smooth, level and free of irregularities. Clean off grease, dirt, oil and other foreign matter and treat surface as required for adhesion of primer.
- (B) Prime door frames with either air-drying or baking, suitable as a base for specified finish paints complying with ANSI A250.10.
- (C) Apply the prime paint on all surfaces of door frames and related components to provide a smooth, blemish free, uniform coating, free of holidays, sags, runs and streaks.
- (D) The prime finish is not intended to be the final layer of protection from the elements. Field painting using a best grade of paint to be provided in compliance with specification *Painting* and in accordance with the recommendations of the door frame manufacturer.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- (A) Before beginning installation, verify that substrate conditions previously installed under

other sections are acceptable for installation of doors frames in accordance with manufacturer's installation instructions and technical bulletins.

- (B) Verify door frame openings are installed plumb, true, and level.
- (C) Select fasteners of adequate type, number, and quality to perform intended functions.

### 3.02 INSTALLATION

- (A) Install frames plumb, level, rigid and in true alignment in accordance with ANSI A250.11, "Recommended Erection Instructions for Steel Frames" and ANSI A115.IG, "Installation Guide for Doors and Hardware".
  - 1. Plumb, align and brace frames securely until permanent anchors are set. Use triangular bracing near each corner on both sides of frames with temporary wood spreaders at midpoint. Use wood spreaders at bottom of frame if the shipping spreader is removed. Protect frame from accidental abuse. Where construction will permit concealment, leave the shipping spreaders in place after installation, otherwise remove the spreaders after the frames are set and anchored. Remove wood spreaders and braces only after the walls are built and jamb anchors are secured.
- (B) Where grouting is required in masonry installations, frames shall be braced or fastened to prevent the pressure of the grout from deforming the frame members. Grout shall be mixed to provide a 4 inch (102 mm) maximum slump and hand troweled into place. Grout mixed to a thin "pumpable" consistency shall not be used.
- (C) All fire rated door frames with a label of greater than 20 minutes, and any other door frames so noted, shall be grout filled solid. Coat frame back with a bituminous coating prior to grout filling.
  - 1. Install fire-rated doors and frames in accordance with NFPA 80 and local code authority requirements.
- (D) Install doors to maintain alignment with frames to achieve maximum operational effectiveness and appearance. Adjust to maintain perimeter clearances as required. Shim as needed to assure the proper clearances are achieved.
- (E) Install hardware as specified in Section *Finish Hardware* in accordance with the hardware manufacturer's recommendations and templates. Templates for hardware shall be coordinated with suppliers of hardware. ANSI A115.IG, "Installation Guide for Doors and Hardware" may be consulted for other pertinent information.
- (F) Floor Anchors:
  - 1. Anchor the bottom of door frames to floor with two 1/4-inch diameter expansion bolts. Use 3/8 inch bolts on lead lined frames.
  - 2. Power actuated drive pins may be used to secure frame anchors to concrete floors.
- (G) Jamb Anchors:
  - 1. Anchors in masonry walls shall be embedded in mortar. Fill space between frame and masonry wall with grout or mortar as the walls are built.
  - 2. Secure anchors to sides of "C" shaped steel studs with two fasteners through anchor tabs. Secure anchor to wire stud with double loops of tie wire around each vertical leg of wire stud and threaded through the holes in the anchor.
  - 3. Frames set in prepared openings of masonry or concrete shall be expansion bolted to the wall with 1/4-inch expansion bolts through the spacers. Where subframes or rough bucks are used, 1/4-inch expansion bolts on 24 inch centers or power activated drive pins 24-inches on centers. Secure two piece frames to subframe or rough buck with machine screws on both faces.
- (H) All hollow metal frames 4' or larger in width shall be rigidly braced to the structure or wall above. Apply hardware in accordance with hardware manufacturer's templates and

instructions. Adjust operable parts for correct function. Remove hardware, with the exception of prime-coated items, tag, box, and reinstall after finish paint work is completed.

- (I) Templates for hardware shall be coordinated with suppliers of hardware. Installation of doors and hardware shall be as specified in *Finish Carpentry and Millwork*.
- (J) Field Finishing: See specification section *Painting*.

### 3.03 PRIME COAT TOUCH-UP

- (A) Immediately after erection, areas where prime coat has been damaged, or where rust is apparent shall be sanded smooth and touched up with same primer as applied at shop.
- (B) Touch-up shall not be obvious, and finish prime coat shall match shop coat paint, thickness and color.

### 3.04 PROTECTION

- (A) Protect installed hollow metal work and finished surfaces against damage during construction.

## END OF SECTION

## FLUSH WOOD DOORS

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) Furnish all labor, material and products for complete assemblies of fire rated and non-fire rated solid core doors. Finish, hardware preparation, and integral door accessories are included in this specification.

## 1.02 WORK NOT INCLUDED

- (A) Field installation of doors in hollow metal frames is specified under *Finish Carpentry and Millwork*.

## 1.03 QUALITY ASSURANCE

- (A) Wood doors shall comply with AWI quality standard: "Architectural Woodwork Quality Standards"; including Section 1300 "Architectural Flush Doors", of Architectural Woodwork Institute (AWI) for premium grade of door, core construction, finish and other requirements exceeding those of NWWDA quality standard.
- (B) Fire-Rated Wood Doors: Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies and are labeled and listed for ratings indicated by Underwriters Laboratories (UL) Standard 10B (neutral pressure) and UL 10C (positive pressure) - Fire Tests of Door Assemblies.
- (C) Obtain all wood doors from a single manufacturer.
- (D) The publications listed below form a part of this specification to the extent referenced and shall be considered the minimal acceptable standards of quality unless superceded by other requirements of this specification:
- American National Standards Institute (ANSI) / Steel Door Institute (SDI):
    - A151.1-1987 Physical Endurance for Steel Doors and Hardware Reinforcings, Test Procedure and Acceptance Criteria
  - American Society for Testing and Materials (ASTM):
    - D1037-06a Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials
  - Architectural Woodwork Institute (AWI):
    - Architectural Woodwork Quality Standards, Eighth Edition 2005
    - Doors shall conform to AWI Section 1400
  - National Fire Protection Association (NFPA):
    - NFPA 80 Standard for Fire Doors, Fire Windows, 1999 Edition
  - National Wood Window and Door Association (NWWDA):
    - I.S. 1A-04 Industry Standard for Architectural Wood Flush Doors
    - I.S. 4-2000 Industry Standard for Water-Repellent Preservative Treatment for Millwork
- (E) All work shall be in full accordance with the latest rules of South Carolina Safety Law, South Carolina Department of Health and Environmental Control, National Board of Fire Underwriters and state or local ordinances of the South Carolina Fire Marshal and International Building Code.

## 1.04 SUBMITTALS

- (A) Samples: Submit samples showing face veneers and finish of doors. For pre-finished

doors, door supplier shall provide the Architect with three (3) samples of stain for approval prior to fabrication of doors.

- (B) Shop Drawings: Show details of door construction, full size molding section detail for light and louver installation, glazing material and louver thickness, face veneer species, and any other pertinent details required for this particular project.
- (C) Submit sample warranty with shop drawings for review and approval of content and format. This warranty shall comply with the requirements of the *WARRANTY* section below.
- (D) Door Schedule: Indicate opening identifying symbol, sizes, door type and grade and show elevation fire classification marking, swing, light and louver cutout sizes and locations, and undercuts.

#### 1.05 PRODUCT HANDLING

- (A) Deliver doors to site after plaster and cement are dry and building has reached average prevailing relative humidity of locality.
- (B) Deliver doors in manufacturer's original unopened protective material or container, clearly marked with manufacturer's name, brand name, size, thickness and identifying symbol on covering.
- (C) Identify each door with individual opening numbers which correlate with designation system used on shop drawings for door, frames, and hardware, using temporary, removable or concealed markings.
- (D) Store doors in area where there will be no great variations in heat, dryness and humidity.

#### 1.06 WARRANTY

- (A) Submit written agreement in door manufacturer's standard form signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup or twist) or that show telegraphing of core construction in face veneers, or do not conform to tolerance limitations of referenced quality standards.
- (B) The life of the warranty shall be as follows:
  - 1. Interior Wood Doors: the life of the building.
- (C) This approved warranty shall be submitted to the Architect at the conclusion of the project and shall be included with other warranties presented to the owner with the close-out documents.

### PART 2 PRODUCTS

#### 2.01 MANUFACTURERS

- (A) Available Manufacturers: Subject to compliance with requirements, manufacturers offering doors, which may be incorporated in the work, shall include and be limited to:
 

Algoma Hardwoods, Inc.	(800) 678-8910	<a href="http://www.algomahardwoods.com">www.algomahardwoods.com</a>
Eggers Industries	(919) 363-4440	<a href="http://www.eggersindustries.com">www.eggersindustries.com</a>
Five Lakes Manufacturing	(586) 463-4123	<a href="http://www.fivelakesmfg.com">www.fivelakesmfg.com</a>
Mohawk Flush Doors, Inc.	(570) 473-3557	<a href="http://www.mohawkdoors.com">www.mohawkdoors.com</a>

 or approved substitution.

#### 2.02 FABRICATION

- (A) Tolerances:
  - 1. Size +/- 1/16" (1.5mm) overall dimensions.
  - 2. Maximum Warp: 1/4" (6mm) as specified in NWWDA I.S. 1A.

3. Squareness: Length of diagonal measured on face of door from upper right corner to lower right corner: Maximum difference 1/4" (6mm).
  4. Finish Thickness: Minimum 3 mil, cured.
  5. Show-through (photographing): 1/100" (0.25mm) deviation from true plane in any 3" (76mm) span on door face.
- (B) All doors shall be pre-machined in accordance with templates from the hardware supplier and the approved hardware considered surface applied. Bevel strike edge of single doors and strike edges of both doors of pairs 1/8" in 2".
- (C) Doors shall be 1-3/4" thick flush doors with select sliced Appalachian Red Oak face veneers and edges in size shown on drawings. Solid core door shall be as follows:
1. No label-solid SLC core.
- (D) Unless field cutting is authorized by the Architect in writing, all openings in doors other than for incidental hardware -shall be cut at the factory and trimmed as shown on the drawings. Molding and trim shall match face veneer.

#### 2.03 DOOR TYPES

- (A) Flush Doors - Interior - Not Fire Rated:
1. Interior wood door construction shall be as follows:
    - a) Structural Composite Lumber (SLC) construction
  2. Honeycomb hollow core doors are not acceptable.
  3. Flush doors for interior use shall meet requirements of NWWDA I.S.1A, Type II bond.
  4. Stiles and Rails: Top and bottom rails for stave core doors shall have minimum 1-1/8 inch face width by full core thickness.
  5. Stiles for doors required to have transparent finish shall have outer ply of species as face veneer of doors.

#### 2.04 FACTORY PRE-FINISHED

- (A) All interior doors shall be factory pre-finished on faces, details, stiles and rails. Finish shall be a four-coat lacquer equal to AWI System #1, Premium Grade. Match existing doors species and stain color.
- (B) Comply with referenced AWI quality standard including Section 1500 "Factory Finishing".
- (C) AWI Grade: Premium.
- (D) Staining: Match approved sample for color.
- (E) Effect: Open grain finish.
- (F) Sheen: Satin-medium rubbed effect.
- (G) All wood doors shall be individually wrapped in poly bags for delivery to project site.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- (A) Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
- (B) Examine doors prior to installation and reject doors with defects.
- (C) Do not proceed with installation until unsatisfactory conditions have been corrected.

#### 3.02 INSTALLATION

- (A) Fit door width by planing and height by sawing.
- (B) Machine doors for hardware to clearance tolerances specified or required.

- (C) Where field installation is required, cut light and louver openings in door not exceeding maximum sizes as specified or required.
- (D) Seal all job site cut surfaces with two coats of similar matching finish as door manufacturer before final hanging of doors.
- (E) Follow door manufacturer's written instructions and reference specification section *Finish Carpentry and Millwork* for all installation work.

**3.03 CLEARANCES**

- (A) Maximum Clearances: 1/8" (3.2mm) at jamb and head for job fit doors; 3/16" (5mm) over threshold or saddle; 1/2" (13mm) over decorative floor coverings; and bevel lock and hinge edges 1/8" (3.2mm) in 2" (51mm).

**3.04 ADJUSTING AND PROTECTION**

- (A) Operation: Re-hang or replace doors which do not swing or operate freely. Replace or re-hang doors which are hinge bound and do not swing or operate freely.
- (B) Factory-Finished Doors: Refinish or replace doors damaged during installation. Restore finish before installation, if fitting or machining is required at the job site.
- (C) Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at time of Substantial Completion.

**END OF SECTION**



## GLASS AND GLAZING

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) Glass and glazing required for this work includes, but is not necessarily limited to insulating glass, safety glass, wire glass, fire-rated glazing, plastic glazing, related glazing materials, and accessories specified apply to factory or field glazed items.

## 1.02 QUALITY ASSURANCE

- (A) All glazing shall comply with requirements of S.C. Safety Law, Pertinent Federal Regulations and Section 24 *Glass and Glazing* as described in the 2009 International Building Code (IBC).
- (B) Comply with Consumer Product Safety Commission (CPSC) standards as required by the IBC.
- (C) The publications listed below form a part of this specification to the extent referenced:
- American Society for Testing and Materials (ASTM):
- |          |  |
|----------|--|
| C509-06  | Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material              |
| C542-05  | Standard Specification for Lock-Strip Gaskets  |
| C716-06  | Standard Specification for Installing Lock-Strip Gaskets and Infill Glazing Materials              |
| C864-05  | Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers |
| C920-08  | Standard Specification for Elastomeric Joint Sealants  |
| C1036-06 | Standard Specification for Flat Glass  |
| C1048-04 | Standard Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass      |
| E84-10   | Standard Test Method for Surface Burning Characteristics of Building Materials                     |
| E119-09c | Standard Test Methods for Fire Tests of Building Construction and Materials                        |
- American National Standards Institute (ANSI):
- Z97.1-1984(R1994) Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test
- Glass Association of North America (GANA):
- Glazing Manual (2008)
- Consumer Product Safety Commission (CPSC) Safety Standard for Architectural Glazing Materials – codified at Title 16, Part 1201 of the Code of Federal Regulations (CFR):
- 16 CFR 1201
- (D) Single Source Responsibility for Glass: To ensure consistent quality of appearance and performance, provide materials produced by a single manufacturer or fabricator for each kind and condition of glass indicated and composed of primary glass obtained from a single source for each type and class required.

## 1.03 SUBMITTALS

- (A) Manufacturer's descriptive data of glass and glazing materials and recommended installation instructions, including certificates stating that laminated glass meets requirements for safety glazing material as specified in ANSI Z97.1

(B) Submit sample warranties with shop drawings for review and approval. These sample warranties shall comply with the requirements of the *WARRANTY* section below.

(C) Samples:

1. Two 12" x 12" pieces of glass.

#### 1.04 PRODUCT HANDLING

(A) Deliver glass with manufacturer's labels intact. Do not remove labels until glass has been installed.

(B) Keep glass free from contamination by materials capable of staining glass.

(C) Deliver glazing compounds and sealants in manufacturer's unopened, labeled containers.

#### 1.05 WARRANTY

(A) Provide a written warranty against defects in materials and workmanship of all laminated glass and glazing herein specified for two (2) years.

### PART 2 PRODUCTS

#### 2.01 MANUFACTURERS

(A) Acceptable glazing manufacturers shall include and be limited to the following:

Spectrum Glass Products	(425) 483 – 6699	<a href="http://www.spectrumglass.com">www.spectrumglass.com</a>
PNA	(800) 221 – 0444	<a href="http://www.pilkington.com">www.pilkington.com</a>
Pittsburgh Plate Glass Co	(412) 434 – 3131	<a href="http://www.ppgspec.com">www.ppgspec.com</a>
Combustion Engineering Glass	(800) 251 – 0441	<a href="http://www.afgglass.com">www.afgglass.com</a>
VETROTEC Saint Gobain N.A.	(888) 803 – 9533	<a href="http://www.vetrotechusa.com">www.vetrotechusa.com</a>
or an approved substitution		

#### 2.02 GLASS TYPES

(A) Laminated Safety Glass:

1. Use heat and light stable polyvinyl butyral (PVB) plasticized resin sheeting for interlayer between glass panes. Use 0.030-inch thick PVB for vertical glazing or 0.060-inch thick PVB for horizontal or sloped glazing and heat strengthened or fully tempered glass assemblies.
2. Laminate glass together with 0.030-inch PVB using:
  - a) Two panes of 3/16-inch thick glass for:  
Unit 3/8-inch thick using 0.030-inch PVB.

#### 2.03 LABELS

(A) Temporary labels:

1. Provide temporary label on each light of glass identifying manufacturer or brand and glass type, quality and nominal thickness.

(B) Permanent labels:

1. Label in accordance with ANSI Z97.1 and SGCC label requirements.

#### 2.04 GASKETS & GLAZING ACCESSORIES

(A) Cellular elastomeric, ASTM C509.

(B) Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.

(C) Setting Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealants, 80 to 90 Shore A Durometer hardness.

- (D) Spacers: Neoprene, EPDM or silicone blocks, or continuous extrusions, as required for compatibility with glazing sealant, of size, shape and hardness recommended by glass and sealant manufacturers for application indicated.
- (E) Edge Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealant, of size and hardness required to limit lateral movement (side-walking) of glass.

#### 2.05 SEALANT

- (A) Compatibility: Select glazing sealants and tapes of proven compatibility with other materials with which they will come into contact, including glass products, seals of insulating glass units, and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.
- (B) Suitability: Comply with recommendations of sealant and glass manufacturers for selection of glazing sealants and tapes which have performance characteristics suitable for applications indicated and conditions at time of installation.
- (C) Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C920 requirements, including those for Type, Grade, Class and Uses. Colors: Black.
  - 1. One-Part Non-Acid-Curing Silicone Glazing Sealant: Type S; Grade NS, Class 25; Use G; low or medium modulus.
  - 2. One-Part Nonsag Urethane Sealant: Type S; Grade NS; Class 25, Use G.
- (D) Preformed Butyl-Polyisobutylene Glazing Tape: Provide manufacturer's standard solvent-free butyl-polyisobutylene formulation with a solids content of 100 percent; complying with AAMA A 804.1; in extruded tape form; non-staining and non-migrating in contact with nonporous surfaces; packaged on rolls with a release paper on one side; with or without continuous spacer rod as recommended by manufacturers of tape and glass for application indicated.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- (A) Check that glazing channels are free of burrs, irregularities and debris.
- (B) Check that glass is free of edge damage or face imperfections.
- (C) Do not proceed with installation until conditions are satisfactory, including acceptable temperature range for application of sealant as recommended by sealant manufacturer.
- (D) Glazier shall inspect work of glass framing erector for compliance with manufacturing and installation tolerances, including those for size, squareness, offsets at corners; for presence and functioning of weep system; for existence of minimum required face or edge clearances; and for effective sealing of joinery. Obtain Glazier's written report listing conditions detrimental to performance of glazing work. Do not allow glazing work to proceed until unsatisfactory conditions have been corrected.

#### 3.02 PREPARATION

- (A) Clean glazing channels and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrates. Remove lacquer from metal surfaces where elastomeric sealants are indicated for use.
- (B) Comply with combined printed recommendations of glass manufacturers, of manufacturers of sealants, gaskets and other glazing materials, except where more stringent requirements are indicated, including those of referenced glazing standards.

- (C) Glazing channel dimensions as indicated in details are intended to provide for necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by job conditions at time of installation.
- (D) Protect glass from edge damage during handling and installation; use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass with flares or bevels along one horizontal edge which would occur in vicinity of setting blocks so that these are located at top of opening. Remove from project and dispose of glass units with edge damage or other imperfections of kind that, when installed, weakens glass and impairs performance and appearance.
- (E) Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.

### 3.03 GLAZING

- (A) Install setting blocks of proper size in sill rabbet, located one quarter of glass width from each corner, but with edge nearest corner not closer than 6" from corner, unless otherwise required. Set blocks in thin course of sealant which is acceptable for heel bead use.
- (B) Provide spacers inside and out, of correct size and spacing to preserve required face clearances, for glass sizes larger than 50 united inches (length plus height), except where gaskets or glazing tapes with continuous spacer rods are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.
- (C) Provide edge blocking to comply with requirements of referenced glazing standard, except where otherwise required by glass unit manufacturer.
- (D) Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
- (E) Provide compressible filler rods or equivalent back-up material, as recommended by sealant and glass manufacturers, to prevent sealant from extruding into glass channel weep systems and from adhering to joints back surface as well as to control depth of sealant for optimum performance, unless otherwise indicated.
- (F) Force sealants into glazing channels to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.
- (G) Tool exposed surfaces of sealants to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.

### 3.04 PROTECTION AND CLEANING

- (A) Protect exterior glass from breakage immediately upon installation by use of crossed streamers attached to framing and held away from glass. Do not apply markers to surfaces of glass. Remove nonpermanent labels and clean surfaces.
- (B) Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove immediately by method recommended by glass manufacturer.
- (C) Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less often than once a month, for build-up of dirt, scum, alkali deposits or staining. When examination reveals presence of these forms of residue, remove by method recommended by glass

- manufacturer.
- (D) Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.
  - (E) Wash glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Wash glass by method recommended by glass manufacturer.

**END OF SECTION**

## GYPSUM DRYWALL SYSTEMS

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) Furnish all labor, equipment and materials necessary to complete hanging gypsum board, backer board and gypsum sheathing.

## 1.02 WORK NOT INCLUDED

- (A) Finishing of gypsum drywall is specified in *Gypsum Drywall Finishing*  
 (B) Installation of stud partition systems or ceiling suspension systems.

## 1.03 QUALITY ASSURANCE

- (A) Provide drywall systems meeting requirements of the International Building Code and Underwriters Laboratories assembly requirements for fire resistance rated assemblies.  
 (B) Definitions and description of terms shall be in accordance with ASTM C11, C840, and as specified.  
 (C) Obtain each type of gypsum board and other panel products from a single manufacturer.  
 (D) The publications listed below form a part of this specification to the extent referenced.

American Society for Testing and Materials (ASTM):

C11-10	Standard Terminology Relating to Gypsum and Related Building Materials and Systems
C473-09	Standard Test Methods for Physical Testing of Gypsum Panel Products
C475/C475M-02(2007)	Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board
C557-03(2009)e1	Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing
C665-06	Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
C840-08	Standard Specification for Application for Application and Finishing of Gypsum Board
C947-03(2009)	Standard Test Method for Flexural Properties of Thin-Section Glass-Fiber-Reinforced Concrete (Using Simple Beam with Third-Point Loading)
C948-81(2009)	Standard Test Method for Dry and Wet Bulk Density, Water Absorption, and Apparent Porosity of Thin Sections of Glass-Fiber Reinforced Concrete
C1002-07	Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs
C1177/C1177M-08	Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
C1178/C1178M-08	Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel
C1396/C1396M-09a	Standard Specification for Gypsum Board

- D226/D226M-09 Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
  - D2394-05e1 Standard Test Methods for Simulated Service Testing of Wood and Wood-Base Finish Flooring
  - D4397-09 Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
- Underwriters Laboratories Inc. (UL):  
Fire Resistance Directory

## 1.04 SUBMITTALS

- (A) Submit manufacturer's product data specifications and installation instructions for materials.

## 1.05 PRODUCT HANDLING

- (A) Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.
- (B) Handle gypsum board to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

**PART 2 PRODUCTS**

## 2.01 MANUFACTURERS

- (A) Acceptable manufacturers of gypsum wallboard shall include and be limited to the following:

Georgia Pacific Corporation	(800) 225 – 6119	<a href="http://www.gp.com">www.gp.com</a>
National Gypsum Co.	(704) 365 – 7300	<a href="http://www.nationalgypsum.com">www.nationalgypsum.com</a>
United States Gypsum Co.	(800) 874 – 4968	<a href="http://www.usg.com">www.usg.com</a>
or approved substitution		

- (B) For reference purposes, gypsum drywall nomenclature used in this specification shall be based upon the United States Gypsum products.

## 2.02 WALLBOARD

- (A) Wallboard shall be 48" wide, complying with ASTM C1396, with eased radial edges and shall be:

1. USG Sheetrock® SW (Firecode™ X), 5/8" thick (typical for single layer application to stud walls).

## 2.03 FASTENERS

- (A) USG Type S-12 and Hi-Lo Type S pan and bugle head screws, sizes as required.
- (B) ASTM C1002 and ASTM C840, except as otherwise specified.
- (C) Fasteners for steel studs thicker than 0.033-inch shall be steel drill screws of size and type recommended by the manufacturer of the material being fastened.
- (D) For fire rated construction, type and size same as used in fire rating test.
- (E) Clips: Zinc-coated (galvanized) steel; gypsum board manufacturer's standard items.

## 2.04 JOINT TREATMENT MATERIALS

- (A) Provide joint treatment materials complying with ASTM C475 and the recommendations

of both the manufacturers of sheet products and of joint treatment materials for each application indicated. Under this specification, provide joint treatment as required to meet fire rated assembly requirements and/or manufacturer's recommendations for joining backer board. For joint treatment in finishing gypsum board see *Gypsum Drywall Finishing*.

- (B) Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated.
- (C) Joint Tape for Tile Backer Board Units: Polymer-coated, open glass-fiber mesh. Finish as per Gypsum Association publication GA-214: Level 2 where water-resistant gypsum backing board panels form substrates for tile, and where indicated. For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by the gypsum board manufacturer for this purpose.
- (D) Setting-Type Joint Compounds for Gypsum Board: Factory-packaged, job-mixed, chemical-hardening powder products formulated for uses indicated. Where setting-type joint compounds are indicated as a taping compound only or for taping and filling only, use formulation that is compatible with other joint compounds applied over it.
- (E) For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by the gypsum board manufacturer for this purpose.

#### 2.05 MISCELLANEOUS MATERIALS

- (A) Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.
  - 1. Laminating Adhesive: Special adhesive or joint compound recommended for laminating gypsum panels.
  - 2. Spot Grout: ASTM C475, setting-type joint compound recommended for spot grouting hollow metal door frames.
  - 3. Fastening Adhesive for Metal: Special adhesive recommended for laminating gypsum panels to steel framing. Provide fastening adhesive all sound rated partitions on metal studs and/or where indicated on drawings.

### PART 3 EXECUTION

#### 3.01 GENERAL APPLICATION

- (A) Apply gypsum wallboard as per minimum standards established in ASTM C840 unless otherwise specified.
- (B) For nonadhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F (10 deg C) for 48 hours prior to application and continuously after until dry. Do not exceed 95 deg F (35 deg C) when using temporary heat sources.
- (C) Ventilation: Ventilate building spaces, as required, for drying joint treatment materials. Avoid drafts during hot dry weather to prevent finishing materials from drying too rapidly.
- (D) Attach all gypsum drywall to studwork with screws (nails are not acceptable). Apply screws with electric screwgun.
- (E) Space screws 12" o.c. in the field of the board and 8" o.c. staggered along vertical abutting edges.
- (F) Space screws not less than 3/8" from ends or edges of wallboard.
- (G) Provide uniform dimple at screws not over 1/32" deep. Do not break face paper.



- (H) On ceilings, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
- (I) Coordinate layout and installation of gypsum board ceilings and suspension system components with other construction that penetrates ceilings or is supported by them, including access doors, light fixtures, HVAC equipment, fire-suppression system components, and partition systems.

### 3.02 CONTROL JOINTS

- (A) Space control joints in wall and ceilings at not more than 30' of uninterrupted run of wall, or at locations indicated on drawings or details.
- (B) Attach Zinc Control Joint No. 093 with Bostitch 9/16" "G" staples or equivalent spaced not over 6" apart in each flange. Cut end joints square and align for neat fit. Remove protective tape when joint treatment is completed. Break panel behind joint and back by double framing members (spaced 14 inches apart).
- (C) Caulk the control joint closed prior to painting.

### 3.03 SINGLE-LAYER WALLBOARD APPLICATION

- (A) Apply face out with long dimension vertical and all abutting ends and edges occurring over stud flanges.
- (B) Stagger joints on opposite sides of partition.
- (C) Use maximum practical lengths of wallboard. Do not "piece" at door frames. No joints should occur at corners of door or window frames unless designated to receive a control joint.
- (D) Cut neatly to fit around all outlets and switch boxes.

**END OF SECTION**

## GYPSUM DRYWALL FINISHING

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) Furnish all labor and materials necessary to complete the gypsum board finishing indicated, specified or both.

## 1.02 WORK NOT INCLUDED

- (A) Installation of gypsum drywall sheets - see *Gypsum Drywall Systems*.  
(B) Installation of stud partition systems or ceiling suspension systems.

## 1.03 QUALITY ASSURANCE

- (A) Definitions and description of terms shall be in accordance with ASTM C11, C840, and as specified.  
(B) Obtain each type of gypsum board and other panel products from a single manufacturer.  
(C) The publications listed below form a part of this specification and shall be considered minimum acceptable standards unless superseded by other requirements of this specification:

American Society for Testing and Materials (ASTM):

- |                     |   |
|---------------------|---|
| C11-10              | Standard Terminology Relating to Gypsum and Related Building Materials and Systems  |
| C475/C475M-02(2007) | Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board |
| C840-08             | Standard Specification for Application and Finishing of Gypsum Board                |
| C1047-09            | Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base  |

Gypsum Association (GA):

- publication GA-232-94, *Painting New Gypsum Board*  
publication GA-216-2000, *Application and Finishing of Gypsum Board*

## 1.04 SUBMITTALS

- (A) Submit manufacturer's literature and data on the following:
1. Cornerbead and edge trim.
  2. Finishing materials.
  3. Submit samples of the following:
  4. Cornerbead.
  5. Edge trim.
  6. Control joints.

## 1.05 PRODUCT HANDLING

- (A) Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.  
(B) Factory pre-mixed joint compound must be protected from freezing, and should be stored accordingly on the job site.

**PART 2 PRODUCTS****2.01 MANUFACTURERS**

- (A) Acceptable manufacturers of gypsum wallboard shall include and be limited to the following:

Georgia Pacific Corporation	(800) 225 – 6119	<a href="http://www.gp.com/gypsum">www.gp.com/gypsum</a>
National Gypsum Co.	(704) 365 – 7300	<a href="http://www.nationalgypsum.com">www.nationalgypsum.com</a>
United States Gypsum Co.	(800) 874 – 4968	<a href="http://www.usg.com">www.usg.com</a>

or approved substitution

- (B) For reference purposes, gypsum drywall nomenclature used in this specification shall be based upon the United States Gypsum products

**2.02 JOINT REINFORCEMENT**

- (A) General: Provide joint treatment materials complying with ASTM C475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
- (B) Joint reinforcement tape shall be USG PERF-A-TAPE® spark perforated, paper reinforcing tape at all inside corner joints and butt edge joints where both sheets are screw attached to the same backing member. Where unsupported butt joints (horizontal joint between boards where board is applied lengthwise) use fiber glass open mesh reinforcing tape.
- (C) Where job mixed joint compounds are used, provide fresh, clean and potable water, free of ice crystals.
- (D) Taping or embedding & filling: USG DURABOND®, polyindurate hardening type joint compound. Joint compound may be factory pre-mixed, or job site mixed.

**2.03 ACCESSORIES**

- (A) General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners
- (B) Provide the following accessories for gypsum drywall finishing:
1. USG Dur-A-Bead® No. 103 Exterior Corner Reinforcement at external corners.
  2. USG 093 Control Joint. Install control joints at locations indicated, and where not indicated - install according to ASTM C840, and in locations approved by Architect for visual effect. Control joints are not required on wall lengths of less than 30 feet.
  3. Misc. metal trimwork shall be installed as may be indicated or required for a complete and finished installation. Typical installations are as follows:
    - a) Install edge trim where edge of gypsum panels would otherwise be exposed or semi-exposed. Provide edge trim type with face flange formed to receive joint compound except where other types are indicated.
    - b) Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
    - c) Install L-bead where edge trims can only be installed after gypsum panels are installed.
    - d) Install J-bead and U-bead where indicated.
    - e) Install H-molding in exterior gypsum board assemblies where control joints are indicated. Install on cut or ends of gypsum panels, not on tapered edges.
    - f) Install aluminum edge trim and other accessories where indicated.
- (C) Install gypsum finishing accessories as per manufacturer's recommendations.

- (D) Coordinate accessories installation with work specified under *Gypsum Drywall Systems*.

### PART 3 EXECUTION

#### 3.01 FINISH QUALITY

- (A) Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per Gypsum Association publication GA-214:
1. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistive-rated assemblies and sound-rated assemblies.
  2. Level 4 for gypsum board surfaces unless otherwise indicated.
    - a.) For Level 4 gypsum board finish: Embed tape in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads, and accessories. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and ready for decoration. Use the following joint compound combination:
      - i. Provide a three step finishing process as follows:
        - Embedding and First Coat: Setting-type joint compound.
        - Fill (2nd) Coat: Setting-type joint compound.
        - Finish (3rd) Coat: Ready-mixed, drying-type, all-purpose or topping compound.

#### 3.02 MIXING

- (A) Where job mixing joint compound in accordance with manufacturer's printed instructions. Do not overmix or use cold materials. Do not mix when ambient air temperature is less than 40 degrees and rising.

#### 3.03 JOINT TREATMENT

- (A) Apply joint tape over all gypsum board joints except those with trim accessories having concealed face flanges not requiring taping to prevent cracks from developing in joint treatment at flange edges.
- (B) Prefill: Fill open spaces between boards of 1/4" or more with taping compound. Allow to harden prior to application of taping coat.
- (C) Taping:
1. Apply a thin uniform layer of compound to joints and angles to be reinforced.
  2. Immediately apply tape, center over joint and seat into the compound.
  3. Provide sufficient compound under tape-approximately 1/32" for proper bond.
  4. Apply skim coat immediately following tape embedment.
  5. Fold tape and embed in angles to provide a true angle.
  6. Allow to harden prior to application of fill coat.
- (D) Filling:
1. Apply compound over taping skim coat.
  2. Fill board taper flush with the surface.
  3. On non-tapered joints, apply compound over the tape and feather out at least 4" on either side of the joint. Apply successive feathering of 8" on either side as may be required to improve visual 'flatness' of joint.
  4. Do not apply filling coat to interior angles.
  5. Allow to dry thoroughly prior to application of finish coat.

## (E) Finishing:

1. Apply topping compound over all joints using minimum 12" compound knife.
2. Feather edge of compound to flush with wallboard. Spread finish coat evenly over and extend at least 2" beyond second coat on all joints and feather to a smooth uniform finish.
3. Do not allow finished joint to protrude beyond plane of the surface. Apply a finish coat to cover tape and taping compound at all tapered angles and provide a true angle.
4. Where necessary sand lightly between coat and following the final application of compound to provide a smooth surface ready for decoration. When sanding, take care not to roughen face paper.

## 3.04 FASTENER DEPRESSIONS

- (A) Apply a minimum of three coats of compound, allowing each coat to dry or harden prior to application of the following coat.
- (B) Leave finish level with the plane of the surface.

## 3.05 METAL ACCESSORIES

- (A) Apply a minimum of three coats of compound, allowing each coat to dry or harden prior to application of the following coat.
- (B) Apply first coat to all bead and trim and properly feather out from ground to plane of surface. Compound must harden prior to application of second coat.
- (C) Apply second and third coat in same manner as first coat, extending compound slightly beyond the previous coat, and properly feathering from ground to plane or surface.

## 3.06 SANDING

- (A) Following the final application of compound, sand where necessary to provide a flat, smooth surface ready for application of paint or wallcovering. Sanding shall be accomplished with fine sanding screen to leave no visible sanding marks.

## 3.07 CLEANING AND PROTECTION

- (A) Promptly remove any residual joint compound from adjacent surfaces.
- (B) Provide final protection and maintain conditions in a manner suitable to Installer that ensures gypsum board assemblies remain without damage or deterioration at time of Substantial Completion.

## END OF SECTION

## VINYL COMPOSITION FLOOR TILE (VCT)

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) Furnish all labor and materials necessary to complete vinyl composition tile flooring (VCT), and base, transition and trim material indicated, specified or both.

## 1.02 WORK NOT INCLUDED

- (A) All bases shall be furnished and installed under *Rubber Base*.

## 1.03 QUALITY ASSURANCE

- (A) The publications listed below form a part of this specification and shall be considered the minimum acceptable standard unless superseded by other requirements of this specification:

American Standard of Testing and Materials (ASTM):

E648-10 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source

E662-09 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials

F1066-04 Standard Specification for Vinyl Composition Floor Tile

- (B) Fire Performance Characteristics: Provide vinyl floor tile with the following fire performance characteristics as determined by testing products per ASTM test method indicated below by UL testing methods:

1. Critical Radiant Flux: 0.45 watts per sq.cm. or more per ASTM E648; NFPA 253.
2. NBS Smoke Density: Less than 450 per ASTM E662; NFPA 258.

## 1.04 SUBMITTALS

- (A) Duplicate samples of each type and style of floor covering materials shall be submitted for approval and color selection. Each sample shall be marked with the name of the project, the manufacturer and grade of materials.

## 1.05 PRODUCT HANDLING

- (A) Deliver materials to the site in original sealed packages or containers, clearly marked with the manufacturer's name or brand, type and color, production run number and date of manufacture. Materials from containers which have been distorted, damaged or opened prior to installation will not be accepted.
- (B) Store materials in weathertight and dry storage facility. Protect from damage from handling, weather, and construction operations before, during and after installation.

## 1.06 EXTRA MATERIALS

- (A) Upon completion of the project, the contractor shall furnish to the Owner at project site, unless otherwise directed, not less than 20 sq.ft. of each color and pattern for each 1,000 sq.ft. or fraction thereof, of each color and pattern installed.
- (B) Furnish extra materials matching products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.

**PART 2 PRODUCTS****2.01 MANUFACTURERS AND PRODUCTS**

- (A) Acceptable resilient floor tile manufacturers shall include and be limited to the following:

Armstrong World Industries, Inc.	(877)277-7664	<a href="http://www.armstrong.com">www.armstrong.com</a>
Azrock by Tarkett	(800)877-8453	<a href="http://www.domco.com">www.domco.com</a>
Congoleum Commercial	(800)274-3266	<a href="http://www.congoleum.com">www.congoleum.com</a>
Tarkett Commercial	(800)877-8453	<a href="http://www.tarkett-commercial.com">www.tarkett-commercial.com</a>
Mannington Mills, Inc.	(800)241-2262	<a href="http://www.mannington.com">www.mannington.com</a>

or approved substitution

- (B) Grades of tile to be incorporated into the project include and are limited to the following:

1. Standard Grade: Standard Grade vinyl tile shall be 1/8" thick and shall be selected from not less than 35 manufacturers standard color patterns in not less than two (2) distinct pattern groups. Standard grade tile shall be as denoted "VCT" on the Finish Schedule or as designated elsewhere on the drawings, and shall include the following vinyl tile products:

Armstrong, Inc.	Excelon®, Imperial Texture	All pattern groups
	Companion Square	
Azrock by Tarkett	Cortina® Colors	All pattern groups
Congoleum	Alternatives®, Choices	All pattern groups
Tarkett Commercial	Expressions®	All pattern groups
Mannington	Essentials/Designer Essentials	

or approved substitution

**2.02 VINYL TILE**

- (A) Standard Vinyl Composition Floor Tile: Products complying with ASTM F1066, Composition 1 (nonasbestos formulated), size 12" x 12" x 1/8" gage.
- (B) Each product type, color and pattern of resilient materials shall be of the same production run.

**2.03 ADHESIVES AND ACCESSORIES**

- (A) Primer (For Concrete Subfloors): Asphalt type as recommended by the adhesive or tile manufacturer.
- (B) Mastic Underlayment (For Concrete Floors): Provide products with latex or polyvinyl acetate resins in the mix. The condition to be corrected shall determine the type of underlayment selected for use.
- (C) Adhesives (Cements): Water-resistant type recommended by tile manufacturer to suit resilient floor tile products and substrate conditions indicated.

**2.04 EDGE STRIPS**

- (A) Resilient Edge Strips: 1/8" thick, homogeneous vinyl or rubber composition, tapered or bullnose edge, color to match flooring, or as selected by the Owner from standard colors available. Edge strips shall be not less than 1" wide except for openings in fire rated corridors where edge strips shall be not less than 2" wide.

**PART 3 EXECUTION****3.01 EXAMINATION**

- (A) Install tiles and accessories after other finishing operations, including painting, have been completed.
- (B) Do not install tiles over concrete slabs until the slabs have cured and are sufficiently dry to bond with adhesive as determined by manufacturer's recommended bond & moisture test.
- (C) Maintain temperature of tile materials above 65 degrees F, for 48 hours before installation.
- (D) Maintain temperature of rooms where tile work occurs above 65 degrees F, for 48 hours, before, during and after installation. After installation the room temperature shall not drop below 55 degrees F.
- (E) Wet construction in or near areas to receive tile materials shall be complete, dry and cured. Building shall be permanently enclosed.
- (F) Any unacceptable subfloor variations or finishes to receive finished resilient floor tile shall be called to the attention of the architect and contractor for satisfactory corrections to be made. Unacceptable conditions include the following:
  - 1. Variation of over 1/8-inch in 10 feet (non-accumulative).
  - 2. Trowel marks, pits, dents, protrusions, cracks or unfinished joints.
- (G) Comply with manufacturer's installation specifications for preparing substrates indicated to receive products indicated. Corrective measures required to produce an acceptable substrate include:
  - 1. Fill cracks, joints and other irregularities in concrete with mastic underlayment. Do not use adhesive for filling or leveling purposes. Do not use mastic to correct imperfections which can be corrected by spot grinding.
  - 2. Broom or vacuum clean substrates to be covered immediately before installing products specified in this section. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.
  - 3. Apply concrete slab primer, if recommended by flooring manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.
- (H) Installation of any resilient floor tile by the subcontractor shall imply that the surfaces are acceptable and satisfactory. Cost of any additional leveling, bonding agents, debris removal, etc., after this point shall be borne by the resilient floor-covering subcontractor.

### 3.02 VINYL TILE INSTALLATION

- (A) Tile shall be laid with joints continuous in both directions. Floors in rooms shall be laid out so that the last course of tile at opposite sides of rooms shall be the same size. Tile shall be laid in accordance with manufacturer's recommendations, by skilled craftsmen under the direction of an experienced and competent foreman or supervisor.
- (B) Where necessary to insure a good bond, areas shall be primed with an approved cutback primer.
- (C) All material shall be set in strict accordance with manufacturer's printed specifications.
- (D) Setting cement for flooring shall be furnished for each type of flooring and shall be supplied in sufficient quantities to complete the installation. All materials shall be brands and type recommended by the flooring manufacturer.
- (E) Mix tile from at least two containers. An apparent line either of shades or pattern variance will not be accepted.
- (F) Trim tiles to touch for the length of intersections at pipes and vertical projections, seal joints at pipes with waterproof cement.
- (G) Tiles shall touch each other at the length of each joint.



- (H) Roll tile floor with a 100 pound roller.
    - 1. More than 5 percent of the joints not touching or any joint more than 1/64-inch will not be accepted.
  - (I) Extend tiles into toe spaces, door reveals, closets, and similar openings.
  - (J) Install tiles on covers for telephone and electrical ducts, and similar items occurring within finished floor areas. Maintain overall continuity of color & pattern with pieces of flooring installed on covers. Tightly adhere edges to perimeter of floor around covers and to covers.
  - (K) Adhere tiles to flooring substrates without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections in completed tile installation.
- 3.03 FLOOR DESIGN PATTERNS
- (A) Vinyl tile grain pattern for all tiles shall run in the same direction unless directed otherwise by the Architect. Generally, all grain direction shall run across short directions of the area.
  - (B) Contractors shall include with the base bid any necessary costs to provide for two-color pattern for all rooms.
- 3.04 VINYL EDGE STRIPS
- (A) Install vinyl edge strips at doorways where composition floor materials intersect with other materials extending from jamb to jamb, located so that when door is closed, strip is directly under center of door.
- 3.05 CLEANING AND PROTECTION
- (A) Remove visible adhesive and other surface blemishes using cleaner recommended by tile manufacturer.
  - (B) When vinyl tile has been sufficiently seated (in no case less than five days), clean in accordance with the manufacturer's directions.
  - (C) After the surfaces have been cleaned, the floors shall be protected from marks, indentations, paint drippings, or other damage by either using building paper or by keeping traffic off the floors until the building is ready for occupancy.
  - (D) At the project conclusion, strip construction wax from tile surface and apply a finish coat of wax. Selection of wax shall be coordinated with tile manufacturer's recommendations, and owner's maintenance personnel.
  - (E) Should the floors become dirty or damaged prior to final acceptance by the Owner, they shall be repaired, recleaned, rewaxed, or replaced as required so that the Owner will receive floors ready for occupancy without additional cleaning before using.
- 3.06 OPERATION AND MAINTENANCE DOCUMENTS
- (A) The General Contractor shall supply original copies of all vinyl flooring cleaning and maintenance information provided by the manufacturer. This information shall be forwarded to the Owner's maintenance personnel upon completion.

**END OF SECTION**

**RUBBER BASE****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) Furnish all labor and materials necessary to complete rubber bases, and accessories as indicated, specified or both.

**1.02 QUALITY ASSURANCE**

- (A) The publications listed below form a part of this specification and shall be considered the minimum acceptable standard unless superseded by other requirements of this specification: American Standard of Testing and Materials (ASTM):
- |          |   |
|----------|---|
| E84-10   | Standard Test Method for Surface Burning Characteristics of Building Materials          |
| E662-09  | Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials |
| F1861-08 | Resilient Wall Base, Group 1 (solid), Type TS   |
- U.S. General Services Administration Federal Supply Service (Fed Specs):
- |           |   |
|-----------|---|
| RR-T-650E | Treads, Metallic and Nonmetallic Skid Resistant |
|-----------|---|
- (B) Fire Performance Characteristics: Provide products with the following fire performance characteristics as determined by testing products per ASTM test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
1. Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM E84
  2. Smoke Density: Less than 450 per ASTM E662.

**1.03 SUBMITTALS**

- (A) Submit two copies of manufacturer's product data and samples for verification purposes in manufacturer's standard sizes of each different color and pattern of product specified.

**1.04 PRODUCT HANDLING**

- (A) Store products in dry spaces protected from the weather with ambient temperatures maintained between 50 deg F (10 deg C) and 90 deg F (32 deg C).

**1.05 EXTRA MATERIALS**

- (A) Furnish extra materials matching products installed as described below, packaged with protective covering for storage, and identified with labels clearly describing contents.
- (B) Furnish not less than 10 linear feet for each 500 linear feet or fraction thereof of each different type and color of resilient wall base installed.

**PART 2 PRODUCTS****2.01 MANUFACTURERS**

- (A) Acceptable manufacturers of rubber base shall include and be limited to the following:
- |                      |                  |  |
|----------------------|------------------|--|
| Flexco Company       | (800) 633 – 3151 | <a href="http://www.flexcofloors.com">www.flexcofloors.com</a> |
| Roppe Corporation    | (800) 537 – 9527 | <a href="http://www.roppe.com">www.roppe.com</a>               |
| BurkeMercer Flooring | (800) 669 – 7010 | <a href="http://www.burkemercer.com">www.burkemercer.com</a>   |
- or approved substitution

## 2.02 RUBBER BASE

- (A) Rubber base shall be 1/8" thick Type TS, Thermoset Vulcanized Extruded Rubber Wall Base. It shall be constructed of first-quality materials properly vulcanized and shall be smooth and free from imperfections which detract from its appearance. The base shall conform fully to the requirements of ASTM F1861, Group 1(solid) rubber.
- (B) Wall base shall be of the cove type with heights of 4" high, 1/8" thick, ribbed back rounded top with matching end stops and preformed corner units.
- (C) Colors shall be as selected by the Architect from a minimum of 32 manufacturer's standard colors.

## 2.03 ADHESIVES

- (A) Adhesives for installation of base shall be type as recommended by the manufacturer for the particular material, substrate and type of installation.

**PART 3 EXECUTION**

## 3.01 EXAMINATION

- (A) Examine areas where installation of products specified in this section will occur, with installer present, to verify that substrates and conditions are satisfactory for installation and comply with manufacturer's requirements and those specified in this section.
- (B) Comply with manufacturer's installation specifications for preparing substrates indicated to receive products indicated. Corrective measures required to produce an acceptable substrate include:
  - 1. Use trowelable leveling and patching compounds per manufacturer's directions to fill cracks, holes, and depressions in substrates.
  - 2. Broom or vacuum clean substrates to be covered immediately before installing products specified in this section. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.
- (C) Maintain a minimum temperature of 70 deg F (21 deg C) in spaces to receive products specified in this section for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. After this period, maintain a temperature of not less than 55 deg F (13 deg C).
- (D) Do not install products until they are at the same temperature as that of the space where they are to be installed.

## 3.02 RUBBER BASE INSTALLATION

- (A) Do not install base until plaster or other backing material is dry and cured. Surface shall be smooth, dust free, with no oil or grease present. Remove paints or similar coatings without using solvents. Base is not to be installed over epoxy paint or vinyl wall covering.
- (B) Before starting installation, layout base material to provide the minimum number of joints, no strip shall be less than half-length. Short pieces to save material will not be permitted.
- (C) Pre-formed outside corners shall be installed prior to the wall base using a 1/8" sawtooth spreader.
  - 1. **Outside corners that are not pre-formed will be unacceptable.**
- (D) Spread adhesive with a 1/8" sawtooth spreader evenly on the back of the base. DO

NOT spread adhesive within 1/4" from the top of the wall base. At least 80% of the base must be covered with adhesive.

- (E) Set base with joints aligned and butted to touch for entire height. DO NOT STRETCH the wall base. The wall base can be stretched while rolling and will later return to its original length causing gaps at the seams. Always roll the base in the direction toward the last piece installed ensuring a tight fit at the seams.
  - 1. **Gaps at the seams will be unacceptable.**
- (F) The wall base can be formed around outside corners and mitered for inside corners in the conventional manner by forming on the job:
  - 1. To form an inside corner, cut a groove approximately 1/32" deep and 4" wide on the back of the wall base, make outside cuts on the toe of the wall base at 45 degree angles, apply adhesive, fold it at a 90 degree angle then fit it firmly into place in the corner.
- (G) Bond the base to the wall within 15 minutes after adhesive application and lightly roll with a hand wall base roller. Roll base for complete adhesion to wall surface. Periodically check the back of the wall base to make sure good adhesive transfer occurs. DO NOT disturb the installed wall base for 48 hours after installation to allow the adhesive to properly set up. Maintain the temperature between 55° F and 95° F thereafter.
- (H) On masonry surfaces or other similar irregular substrates, fill voids along top edge of wall base with manufacturer's recommended adhesive filler material.

### 3.03 CLEANING AND PROTECTION

- (A) Remove visible adhesive and other surface blemishes using cleaner recommended by tile manufacturers. Sweep or vacuum to remove dirt and other particles.
- (B) Should the wall base become dirty or damaged prior to final acceptance by the Owner, they shall be repaired, recleaned, rebuffed, or replaced as required so that the Owner will receive floors ready for occupancy without additional cleaning before using.

**END OF SECTION**

## MODULAR CARPET TILES

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- (A) This Section includes the furnishing and installation of all modular carpet tiles, edge strips, adhesives, and other items required for the installation specified. Provide carpet in areas shown on the drawings identified in the Room Finish Schedule.

## 1.02 QUALITY ASSURANCE

- (A) Flooring Contractor's Qualifications: firm with not less than 5 consecutive years of experience in installation of commercial carpeting of type, quantity and installation methods similar to work of this section.
- (B) Measurement Verification: Dimensions shown on drawings are approximate. It is the Flooring Contractor's responsibility to verify all dimensions and job site conditions; order sufficient quantity to fully carpet areas as indicated and to fill overage requirements as specified. No substitutions shall be permitted to make up for any shortage of material in overage or in carpet to be installed.
- (C) Flooring Contractor shall be totally responsible for the accuracy of his measurements of total quantity of carpet tiles required, individual floor area, and dye lot requirements, and extra quantity for pattern match; no additional compensation shall be allowed for shortage of materials.
- (D) The publications listed below form a part of this specification and shall be considered minimum acceptable standards unless superseded by other requirements of this specification:

The Carpet and Rug Institute (CRI):

CRI 104-2002 Standard for Installation Specification of Commercial Carpet  
American National Standards Institute (ANSI) (as Published by Tile Council of America, Inc.) Latest Edition

American Society of Testing and Materials (ASTM):

E84-10 Standard Test Method for Surface Burning Characteristics of Building Materials

E648-10 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source

D2859-06 Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials *passing methenamine pill test*

E662-09 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials

National Fire Protection Association (NFPA)

NFPA 253: Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Heat Energy Source, 2000 Edition *not less than 0.45 watts per sq. cm.*

NFPA 258: Recommended Practice for Determining Smoke Generation of Solid Materials, 2001 Edition

- (E) Whenever a particular make of material or trade name is specified herein, it shall be regarded as being indicative of the standards required. Any product other than those named in Part 2, Products, will be considered only if submitted in accordance section *Substitutions (10 Day Prior Approval)* of these contract documents and under the terms

and conditions as outlined below:

1. Written application for approval of substitute shall include specifications of substitute carpet on company letterhead and signed by company officer.
2. 18" x 18" sample of the proposed substitute with recommended backing technology.
3. A complete sample representation of colors available.
4. Copies of warranties for proposed substitute.

#### 1.03 SUBMITTALS

- (A) Samples for verification purposes and for color selections in manufacturer's standard size, showing full range of color, texture, and pattern variations expected. Samples shall be accompanied by manufacturer's technical specification for each carpet using terminology characteristics as listed in this specification. Prepare samples from same material to be used for the Work. Submit the following:
1. 18-inch-square samples of each type of carpet material required.
  2. 12-inch-long samples of each type exposed edge stripping and accessory item
- (B) Three copies of a printed installation manual written by the carpet manufacturer's Technical Service Department will be supplied to the Architect before acceptance of material.
- (C) Submit sample warranties, as listed in *WARRANTY* section below, with technical data for review and approval.

#### 1.04 WARRANTY

- (A) Definition of Lifetime: Lifetime is defined as the period from which materials are installed until the date in which the owner removes them from service.
- (B) Manufacturer's Warranty: Limited Lifetime Warranty, non-prorated, against product failure covering all costs including freight, labor, and material for the following:
1. Wear- No more than 10% Face Yarn Loss
  2. Static
  3. Edge Ravel – guaranteed no edge ravel in normal use
  4. Tuft Bind
  5. Delamination – guaranteed no delamination in normal use
  6. Cup, Dome, Dish.
- (C) Installation Warranty: non-prorated warranty, against any installation related failure covering all costs including freight, labor, and material co-signed by the flooring contractor and the manufacturer for a period of two (2) years. During this period, the flooring contractor shall respond within 15 days written notice to repair seams and edges as required due to normal use by occupants.

#### 1.05 PRODUCT HANDLING

- (A) Deliver materials to project site in original factory containers, labeled with identification of manufacturer, brand name, and lot number. Maintain protective covers in place until carpet is ready for installation. The carpet manufacturer shall provide:
1. Identify each carton of carpet tiles by individual number, using a hangtag or similar device.
  2. Written certification that those particular carpet tiles were shipped to the carpet contractor for that particular job.
  3. Attached to his certification, copies of the testing laboratory report as to flame spread, smoke developed and radiant flux for the type of carpet specified.

- (B) Store materials in original undamaged packages and containers, inside well-ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity. Maintain minimum temperature of above 40 deg F.

#### 1.06 EXTRA MATERIALS

- (A) Furnish 5% additional square footage of carpet tile required; extra is over and above any overage provided by manufacturer.
- (B) Furnish extra materials that match products installed as specified herein, neatly bundled or packaged.
- (C) Deliver all required extra materials to Owner uncut in clearly marked dust-proof packages prior to beginning installation; store where directed.

### PART 2 PRODUCTS

#### 2.01 MANUFACTURERS AND PRODUCTS

- (A) General: All materials shall be 100% man-made new materials and of domestic manufacturer. Carpet is to be of "first" quality. All carpet of the same type in continuous areas shall be from the same dye lot. Materials, construction and appearance of are based on the following specifications.
- (B) Carpet sub-contractors shall provide bids based on the following types of carpets as designated as "Carpet" or "CPT" in the Room Finish Schedule and of the manufacturer and product options indicated below. The following options are to be priced for installation in the areas indicated on the drawings to receive Carpet:
- (C) Acceptable modular carpet tiles shall include and be limited to the following manufacturer and product:

Lee Carpet – style "Faculty IV"  
Shaw Contract Group – style "Reflections IV"  
or approved substitution

1. Carpet shall meet the following minimum requirements:
 

Construction:	Loop
Yarn Weight:	26 oz. per sq. yd. minimum
Primary Backing:	reinforced synthetic
Width:	24" x 24"
Flammability:	ASTM E648 flooring radiant panel class 1
Smoke Density:	NBS Smoke Chamber NFPA 258 Less than 450

(D) Warranty: manufacturer's limited lifetime warranty, non-prorated, against product failure covering all costs including freight, labor, and material for the following: edge ravel/tuft bind, back delamination, static protection as stated above, wear – no more than 10% face yarn loss; cup, dome, dish; dimension stability; and adhesive bond to the floor. Manufacturing defects for the life of the carpet including moisture barrier, delamination, tuft bind, and edge ravel along with a fifteen year wear warranty.

(E) Transition strips and options shall be as recommended by the manufacturer.

#### 2.02 ACCESSORIES

- (A) Adhesives: Pressure Sensitive Carpet Tile Releasable Conductive Adhesive as recommended by manufacturer for access floor installation and non-access floor installation. All floor sealers, seam sealers, and adhesives shall contain no calculated solvents per OSHA Regulation 29 CFRE 1910.1200, have no calculated VOC's, and be

non-flammable. MSDS and samples required on product used. Acceptable concrete floor sealers are limited to the following manufacturers and products:

Kure-N-Seal-Sonneborn #0800	Chemrex, Inc.
Spartan Cote Cure Seal Hardener	The Burke Group
Shaw Contract Group 9050 Primer	Shaw Contract Group
or approved substitution	

- (B) Transition strips and options shall be as recommended by the manufacturer.
- (C) Protection paper: heavy, reinforced, non-staining building material paper as recommended by manufacturer. Plastic sheeting is not acceptable.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

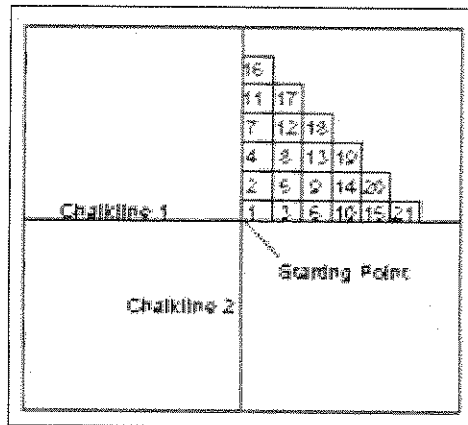
- (A) Substrate Conditions: No condensation shall occur within 48 hours on underside of 4-foot by 4-foot polyethylene sheet, fully taped at perimeter to substrate.
- (B) Floor construction and surfaces to receive carpeting shall be inspected by the Subcontractor and he shall promptly notify the General Contractor of any and all defects in the floor which affect this work so they may be corrected before start of work. Proceeding with this work shall be deemed as acceptance by the subcontractor of the pertinent floor areas and he shall be held responsible thereafter for installation of completed work.
- (C) The subcontractor shall be held responsible for the accuracy of measurement and fit of this work.

#### 3.02 INSTALLATION

- (A) The work specified herein shall be done by skilled workmen fully experienced in this type of work.
- (B) Carpet shall not be installed until all other finishes have been completed in all rooms scheduled to receive carpet.
- (C) Site Testing and Conditioning:
  - 1. Maintain the temperature of the installation site, carpet, and adhesive between a minimum temperature of 65° F and a maximum temperature of 95° F for 24 hours before installation. Do not begin the installation if the room or subfloor temperature is below 65° F. The adhesive will not function properly when applied over an extremely cold surface. Relative humidity should not exceed 65%. Maintain these conditions for 24 hours prior to, during and 24 hours after installation.
  - 2. Test the concrete for alkalinity prior to beginning the installation. Check the concrete for surface pH at several locations. A reading below 5.0 or above 9.0 requires corrective measures. Consult manufacturer's technical services department for specific information on the correct method of neutralizing low or high pH.
- (D) Check the concrete for moisture at several locations using anhydrous calcium chloride test kits. The moisture transmission rate must not exceed 5.0 lbs. per 1000 sq. ft. per 24 hours. Do not begin the installation if an unacceptable moisture level is detected.
- (E) Floor Preparation:
  - 1. The floor must be dry, free of dust, dirt, oil, grease, paint, wax, or any debris that could affect adhesion of the carpet modules to the floor.
  - 2. Do not use sweeping compounds as they may leave oily deposits. The floor must be level and smooth.
  - 3. Depressions and uneven surfaces shall be filled and leveled with a liquid latex additive



- patching compound.
4. Projecting irregularities shall be removed by chipping and grinding.
  5. Subfloor shall be sealed as recommended by manufacturer.
- (F) Raised Access Floor Panels: All panels must be smooth, level, secure and free of any material that will affect the adhesive bond. Carpet modules must be installed offset from access panel seams. Gaps between panels must not exceed 1/16".
- (G) Site Layout:
1. The starting point in a modular installation must be as near to the center of the room as possible and must be positioned to utilize the largest perimeter cut module size.
  2. Snap a chalk line parallel to one major wall bisecting the starting point. It may be necessary to offset the center chalk line to assure perimeter modules will be at least half size.
  3. A second chalk line must be snapped from the starting point at 90° to the first line. This can be accomplished using a 3-4-5, 6-8-10, or larger triangle, depending on the room size.
- (H) Adhesive Requirements: Modular carpet squares require the use of manufacturer's Pressure Sensitive Adhesive. Allow the adhesive sufficient open time so that it will not transfer to the back of the tile.
1. Non-Access Floor Installation – Application by Trowel
    - a.) A 1/16" x 1/16" x 1/16" U-notched trowel should be used. Adhesive must be full spread to achieve complete coverage. Do not use a roller to spread adhesive. Allow the adhesive to dry completely before putting tile in place.
  2. Access Floor Installation – Application by Roller
    - b.) A 1/4" foam roller should be used. Adhesive should be full spread over the access floor panels to achieve complete coverage. For best results, the adhesive should be poured onto the panels' in an "S" configuration, 8' tall. The adhesive should be rolled to achieve complete coverage on the access floor panels. Allow the adhesive to dry completely before putting carpet tile in place.
- (I) Begin the installation by installing according to the carton number. Install each module according to directional arrows on the backing that correspond to the style and pattern as approved by the architect.
- (J) Installation must begin at the intersection of two chalk lines. Installation must continue until completed in one quadrant, and then proceed to an adjoining quadrant until all four quadrants are completed. Larger areas may require chalk lines bisecting the original four quadrants.
- (K) Install modules using the pyramid technique as illustrated. This allows multiple alignment checks. If the edges do not align and the misalignment increases with progression of the installation, the source of the problem must be identified and corrected.



- (L) Slide modules into position to prevent yarn from being trapped between the modules.
- (M) Modules must fit snugly, but not be compressed. Check for fit by measuring the length of ten full modules after installation. The measurement must not be less than, or exceed by more than 1/4 inch, the length of the modules being multiplied by ten.
- (N) Modules may be cut by measuring and cutting from the back using a straight edge. Care must be taken to assure the arrows are pointing in the correct direction. Cut carpet evenly and accurately where required to fit neatly at walls, columns, and projection. Cut openings of carpet where required for installing equipment, pipes, outlets, and the like. Bind cut edges of carpet and replace flanges or plates. Use additional adhesive to secure carpets around pipes and other vertical projections.
  - 1. All cutting of carpet for telephone and electrical outlets, etc. shall be the responsibility of the Flooring Contractor.
- (O) Binder bars shall be installed at all areas where floor-covering material changes, or at carpet edges that do not butt a vertical surface.
- (P) Installed carpet shall be free from ripples, ravel, frays, puckers and raw exposed edges; and shall be free of spots, dirt or soil, tears or pulled tufts. It is the contractor's responsibility to trim all edges to eliminate fuzzy seams.
- (Q) Roll the entire installation with a 75 pound roller once it is completed.

### 3.03 ACCESSORY INSTALLATION

- (A) Install plastic edge strips over exposed carpet edges adjacent to uncarpeted finish flooring. Anchor strips to floor with suitable fasteners. Apply adhesive to edge strips, insert carpet into lip and press it down over carpet.

### 3.04 PROTECTION AND CLEANING

- (A) Remove waste, fasteners and other cuttings from carpet floors. Remove and dispose of debris and unusable scraps. Vacuum carpet using two motor, top loading, upright commercial machine with brush-only element, utilizing a high filtration dust bag.
- (B) Remove spots in accordance with carpet manufacturer's guidelines and replace carpet modules where spots cannot be removed. Remove any protruding face yarn using sharp scissors. Be certain to trim any loose yarns or fibers at all seams.
- (C) Following cleaning and vacuum, provide suitable protection from soiling and damage until final acceptance. Protection shall be accomplished by using approved non-staining building material protection paper. Plastic sheeting is not acceptable. Edges shall be lapped 6 inches and secured with non-asphaltic tape. Covering shall be kept in repair

and damaged portions replaced during the construction and move-in period. Traffic shall not be permitted on unprotected carpeted surfaces.

- (D) Use plywood over the carpet when heavy objects are moved within 24 hours after installation.
- (E) If carpet is soiled after the installation and before final acceptance of work, cleaning as recommended by the carpet manufacturer shall be the responsibility of the contractor.
- (F) If carpet is damaged after the installation and before the final acceptance of work, repairs or replacements of the carpet as recommended by the carpet manufacturer shall be the responsibility of the Contractor.
- (G) Just before final acceptance of work, remove protection and vacuum carpet clean.

### 3.05 MAINTENANCE DOCUMENTS

- (A) Upon completion of the project, the carpet sub-contractor shall supply the General Contractor with three copies of a printed cleaning and maintenance manual written by the carpet manufacturer's Technical Service Department. This information shall be included with the 'Operation and Maintenance documents' provided by the General Contractor to the Owner's maintenance personnel at the conclusion of the project.

**END OF SECTION**

**PAINTING****PART 1 GENERAL****1.01 WORK INCLUDED**

- (A) Furnish all labor and material necessary to complete painting and finishing indicated, specified or both.
- (B) Except as otherwise specified, paint and/or finish all exposed surfaces of wood, plaster, metal, concrete masonry units, stucco, concrete, unfinished metals, structural steel, gypsum wallboard and cementitious fiber boards or other material as required to make a complete job.
- (C) The contractor shall examine the specifications for the various other trades and shall thoroughly familiarize himself with all provisions regarding their painting and shall understand that all surfaces that are left unfinished by the requirements of other sections shall be painted under this section. The contractor shall understand that all work specified under this section shall be in addition to shop & mill coats, priming & field coats specified in other sections.
- (D) The contractor shall do all touching up of shop coats and field coats of paint on structural steel and miscellaneous steel or iron as required and/or specified.

**1.02 WORK NOT INCLUDED**

- (A) Items and surfaces that do NOT require painting shall include:
  - 1. Prefinished items: Casework, doors, elevator entrances and cabs, prefabricated metal building, equipment, and similar items specified under other sections.
  - 2. Concealed surfaces: Inside dumbwaiter, elevator and duct shafts, pipe basements, crawl spaces, pipe tunnels, above ceilings, attics, except as otherwise specified. Surfaces concealed behind permanently installed casework and equipment. Structural steel encased in concrete, fire rating enclosures or in spray fireproofing.
  - 3. Finished surfaces: Anodized aluminum, stainless steel, chromium plating, copper, brass, except as otherwise specified.
  - 4. Moving and operating parts: Shafts, chains, gears, mechanical and electrical parts such as valve stems, operators, linkages, sprinkler heads, sensing devices.
  - 5. Labels: Any code required label such as Underwriters Laboratories Inc., or Factory Mutual Research Corporation, identification plates, instruction plates, performance rating, nomenclature.
  - 6. Hot-dip galvanized metal, except where specifically specified to be painted. Exterior galvanized metal such as chain link fence and gates, corrugated metal areaways, gratings. Metal safety treads and nosings.
  - 7. Concrete curbs, gutters, pavements, retaining walls, and foundations.
  - 8. Face brick.

**1.03 QUALITY ASSURANCE**

- (A) Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to those indicated for the Project that have resulted in a construction record of successful in-service performance for a period of not less than five (5) years.
- (B) Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.

- (C) The following publications shall become a part of this specification to the extent referenced:

American Society for Testing and Materials (ASTM):

- |          |  |
|----------|--|
| D3359-08 | Standard Test Methods for Measuring Adhesion by Tape Test                      |
| E84-08   | Standard Test Method for Surface Burning Characteristics of Building Materials |
| E119-08a | Standard Test Methods for Fire Tests of Building Construction and Materials    |

National Fire Protection Association (NFPA):

- |          |  |
|----------|--|
| NFPA 255 | Standard Method of Test of Surface Burning Characteristics of Building Materials, 2006 Edition |
|----------|--|

#### 1.04 SUBMITTALS

- (A) Before any color selections are made by the Architect, submit manufacturer's literature, indicating brand names, kind, color, texture, composition of vehicle and pigment, Federal Specification Number where applicable, and certificates as specified. List each material to be painted and cross-reference the specific coating, finish system, and application.
- (B) All paint colors shall be as selected from a complete color chip catalog submitted by the general contractor and listed on color schedule, to be issued by the Architect. Do not proceed without approved schedule.

#### 1.05 PRODUCT HANDLING

- (A) All materials shall be delivered to the building in manufacturer's sealed cans, or packages, with labels in tact and seals unbroken.
- (B) The contractor shall be assigned a definite place for the storage of his equipment and the mixing of his materials and he shall have such place clean and in order at all times.

### PART 2 PRODUCTS

#### 2.01 MANUFACTURERS

- (A) Manufacturers considered acceptable suppliers of products specified in this section shall include and be limited to the following:
- |               |                |  |
|---------------|----------------|--|
| Porter Paints | PPG Industries | <a href="http://www.porterpaints.com">www.porterpaints.com</a> |
|---------------|----------------|--|
- or approved substitution
- (B) Paints of these manufacturers shall be of best grades recommended by manufacturers for the purposes intended. Oils, thinners, driers shall be only those recommended by manufacturer of paint. Nomenclature in some areas of this section is based on products and terminology of Porter Paints.
- (C) Shellac shall be fresh, pure, best grade dewaxed, white shellac, three pound cut.

#### 2.02 PRODUCT SELECTIONS

- (A) Proprietary Names: The materials and schedules included in this specification are based on the products of approved manufacturers.
- (B) Approved Substitutions: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Other paint manufacturers may be submitted to the Architect as an approved substitution. To obtain consideration as an approved substitution, such submittals shall clearly indicate the

specification paragraph and item number for which the substitution is being proposed. All items being submitted for approval shall be submitted 10 days prior to the project bid in keeping with requirements of section *Substitutions*.

## 2.03 MATERIALS

### (A) Primers:

1. Primers: Provide the manufacturer's recommended factory-formulated primers that are compatible with the substrate and finish coats indicated.
2. Approved primers shall include the following products:
  - Gypsum Drywall Primer: White, interior, latex-based primer  
Porter: 426 Drywall Sealer
  - Ferrous Metal Primers: Alkyd-type primers  
Porter: 286 U-Prime Metal Primer

### (B) Undercoat Materials: Provide the manufacturer's recommended factory-formulated undercoat materials that are compatible with the substrate and finish coats indicated.

1. Approved undercoat materials shall include the following products:
  - Interior Enamel Undercoat over Concrete: Ready-mixed enamel.  
Porter: 1129 Blankit
  - Interior Enamel Undercoat over Primed Ferrous or Galvanized Metal: Ready-mixed  
Porter: 135 Glyptex Pigmented Sealer

### (C) Interior Finish Paint Material - Flat

1. Finish Paint: Provide the manufacturer's recommended factory-formulated finish-coat materials that are compatible with the substrate and undercoats indicated.
2. Approved interior finish paint products shall include the following:
  - Interior, Gloss, Alkyd Enamel on Metals:  
Porter: 4110 Glyptex Urethane Enamel

### (D) Interior Finish Paint Material – Eggshell (Standard Paint Finish)

1. Finish Paint: Eggshell Finish Coat (ES): Interior eggshell alkyd enamel for use over a primer on gypsum drywall.
2. Approved interior eggshell finish paint products shall include the following:
  - Eggshell alkyd enamel  
Porter: 129 Pro-Master 2000 Interior Alkyd Satin Enamel

## PART 3 EXECUTION

### 3.01 EXAMINATION

- (A) Store all materials at the site at least 24 hours before using in order to bring their temperature between 65 and 85 degrees F.
- (B) Do no exterior or interior painting in foggy, damp or rainy weather. When building is enclosed, interior work may be painted.
- (C) Paint exterior and interior surfaces when the ambient temperature is between 45 and 90 degrees F, except when water thinned paints are used, the ambient temperature shall be between 50 and 90 degrees F, unless otherwise designated in the manufacturer's printed instructions. Maintain these temperatures until the paint dries hard.
- (D) Examine substrates and conditions under which painting will be performed for compliance with paint application requirements. Surfaces receiving paint must be thoroughly dry before paint is applied.

- (E) Do not begin to apply paint until unsatisfactory conditions have been corrected. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.
- (F) Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
- (G) Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

### 3.02 PREPARATION

- (A) General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items, if necessary, to completely paint the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.
- (B) For fire rated doors required to be field finished, the identifying labels are to be masked in place and painted over, not removed.
- (C) Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease prior to cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- (D) Surface Preparation: Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition and as specified. Provide barrier coats over incompatible primers or remove and reprime. Notify Contracting Officer in writing about anticipated problems using the specified finish-coat material with substrates primed by others.
- (E) Cementitious Materials:
  - 1. Prepare concrete, concrete masonry block, cement plaster & mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen, as required, to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation. Use abrasive blast-cleaning methods if recommended by the paint manufacturer. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application.
  - 2. Concrete floors to be painted shall be neutralized by washing with a solution of three pounds of zinc sulphate crystals to one gallon of water, allowed to dry three days and brushed thoroughly free of crystals.
  - 3. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
  - 4. Concrete shall have all broken and spalled edges repaired with patching compound to match adjacent surfaces. Remove projections to level of adjacent surface by grinding or similar methods.
- (F) Masonry: Remove all loose mortar in masonry work. Replace mortar and fill all open joints, holes, cracks and depressions with patching compound, finished flush with adjacent surface, with texture to match texture of adjacent surface.
- (G) Ferrous Metals: Clean ungalvanized ferrous metal surfaces that have not been

shop-coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council (SSPC). Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by the paint manufacturer, and touch up with the same primer as the shop coat.

- (H) Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so that the surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- (I) Gypsum Plaster and Drywall: Remove efflorescence, loose and chalking plaster. Remove dust, dirt, and other deterrents to paint adhesion. Fill holes, cracks, and other depressions with patching compound, finished flush with adjacent surface, with texture to match texture of adjacent surface.

### 3.03 MIXING

- (A) Carefully mix and prepare paint materials according to manufacturer's directions.
- (B) Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
- (C) Stir material before application to produce a mixture of uniform density; stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
- (D) Use only thinners approved by the paint manufacturer and only within recommended limits.
- (E) Tinting: Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

### 3.04 APPLICATION

- (A) Apply paint according to manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
- (B) Paint colors, surface treatments, and finishes are indicated in the schedules.
- (C) Provide finish coats that are compatible with primers used.
- (D) The number of coats and the film thickness required are the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce a smooth even surface according to the manufacturer's directions.
- (E) Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
- (F) Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
- (G) Finish interior of millwork cabinets and similar field-finished casework to match exterior.
- (H) Sand lightly between each succeeding enamel coat.
- (I) Omit primer on metal surfaces that have been shop-primed and touch-up painted.
- (J) Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before



- subsequent surface deterioration.
- (K) Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- (L) Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to the manufacturer's directions.
1. Use brushes best suited for the material applied.
  2. Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
  3. Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.
- (M) Minimum Coating Thickness: Apply materials no thinner than the manufacturers recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- (N) Mechanical and Electrical Work: Painting mechanical and electrical work is limited to items exposed in mechanical equipment rooms and in occupied spaces.
- (O) Fillers and Preparation:
1. Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
  2. Knots, sap, and pitch streaks in lumber that will be given a paint finish shall be brush coated with Shellac before the prime coat is applied.
- (P) Prime Coats:
1. Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime-coated by others.
  2. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
  3. After the prime coat has been applied, nail holes shall be filled with putty colored to match the finish. Putty shall be brought flush with the surface of the woodwork.
- (Q) Pigmented (Opaque) Finishes:
1. Completely cover to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage.
- (R) Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- (S) Provide satin finish for final coats.
- (T) Paint shall be applied in the number of coats specified, which is minimum acceptable and at the square foot coverage as stated in the paint manufacturer's printed specifications. It is intended that paint so applied shall cover to the satisfaction of the architect or additional coats shall be applied at the contractor's expense until approval is obtained.
- (U) Completed Work shall match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with specified requirements.
- (V) The painting contractor shall be responsible for marking the necessary identifications of rated partitions above the finish ceiling as required by the International Building Code: "Corridor partitions, smokestop partitions, horizontal exit partitions, exit enclosures, and fire walls shall be effectively and permanently identified with signs or stenciling in a manner acceptable to the authority having jurisdiction. Such identification shall be above any

decorative ceiling and in concealed spaces." Wording shall be "FIRE AND SMOKE BARRIER - PROTECT ALL OPENINGS".

### 3.05 FIELD QUALITY CONTROL

- (A) The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:
1. The Owner will engage the services of an independent testing agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.
  2. The testing agency will perform appropriate tests for confirmation of the product compliance with these specifications.
  3. If test results show material being used does not comply with specified requirements, the Contractor may be directed to stop painting, remove noncomplying paint, pay for testing, repaint surfaces coated with rejected paint, and remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are incompatible.

### 3.06 CLEANING AND PROTECTION

- (A) The contractor shall take particular care by use of clean drop cloths, masking and other suitable means, to protect adjoining surfaces, fixtures, and materials of all kinds, and shall be held responsible for and shall repair any damage resulting from the painting operations.
- (B) At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
- (C) After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.
- (D) Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
- (E) Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
- (F) At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.07 INTERIOR PAINT SCHEDULE

1. Eggshell (ES): Two coats with total dry film thickness not less than 3.0 mils.  
Primer: Interior, flat, latex-based primer  
Finish Coat: Eggshell alkyd enamel
- (B) Miscellaneous Interior Finishes:
  1. Wood - Transparent Finish  
Transparent stain finish: Five coats  
1<sup>st</sup> coat - Fill if needed  
2<sup>nd</sup> coat - Porter #852 non-wiping wood stain  
3<sup>rd</sup> coat - Porter #671 twin seal sanding sealer  
4<sup>th</sup> coat - Porter #831 satin varnish  
5<sup>th</sup> coat - Porter #831 satin varnish
  2. Wood - Painted

Three coats:

1<sup>st</sup> coat - Fill if needed

2<sup>nd</sup> coat - Porter #135 Glyptex pigmented sealer

3<sup>rd</sup> coat - Porter #129 hi-hide alkyd satin enamel

3. Ferrous Metal (includes hollow metal door frames, door lite trim frames and other ferrous metals):

Full-Gloss Enamel Finish: Two coats over primer with total dry film thickness not less than 3.5 mils.

Primer: Synthetic, quick-drying, rust-inhibiting primer

Undercoat: Interior enamel undercoat

Finish Coat: Exterior, gloss, alkyd enamel

4. Zinc-Coated Metal (Galvanized):

Full-Gloss Enamel Finish: Two coats over primer with total dry film thickness not less than 2.5 mils.

Primer: Galvanized metal primer

Undercoat: Interior enamel undercoat

Finish Coat: Exterior, gloss, alkyd enamel

**END OF SECTION**

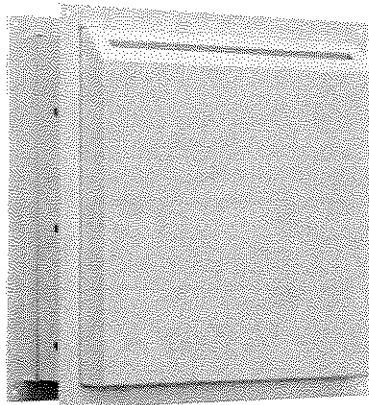

 
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## Through The Wall Mail Slot

Item #PSWDS311

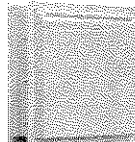
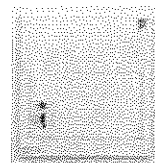
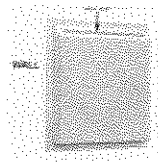
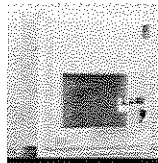
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Qty 1



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Our Through The Wall Locking Mail Slot allows envelopes and magazine sized mail to be easily dropped into a secure box and retrieved from the interior or other side of the mail slot. The mail slot is 12-3/8" wide and 1/2" deep and has a baffle to help protect against mail theft fishing.

If you are looking for a larger opening to drop keys into a secure wall mounted lock box **check out the [Through the Wall Locking Drop Box](#)** for the home or office.

Not the mail slot you're looking for? **See our full selection of [Mail Slots](#) for your door or wall.**

This through the wall mail drop slot includes a compartment to keep all your items secure until retrieved from the other side. Two tubular style keys are included and the piano style hinge allows the door to be easily opened. The reinforced double steel retrieval door protects against prying.

Three pre-drilled mounting holes on each side allow you to securely mount the mail slot lock box between studs. The adjustable frame allows for easy installation, simply cut out the sheet rock or wall material and install in the wall. The metal frame flange hides the rough cuts.

This unit only works on maximum 6.5 inch thick wall. This drop box comes with 2 adjustable frames for the front

- \$9.95 US ground per item shipping
  - 60 day money back guarantee
  - 100 percent safe, secure shopping
  - Your privacy is assured
- [Click here to read more](#)

## Through The Wall Mail Slot - Locking Drop Boxes

This unit only works on maximum 6.5 inch thick wall. This drop box comes with 2 adjustable frames for the front and back of the safe.

Ground shipping in the contiguous 48 United States is just \$9.95.

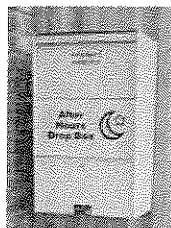
This drop box is perfect for securely accepting rent checks, cash, letters, mail, large envelopes and more. The interior dimensions are 14" W x 15" H x 8-3/4" D and weights and impressive 22 lbs. The door opening to retrieve the items out is 11-1/4" x 5-1/4". **Not designed for direct weather and should be located under an eave.**

**Drop box Features:**

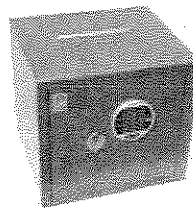
- Drop slot opening is 12-3/8" long enough to drop legal size paper or large envelopes
- Tubular-style keylock with Double "D" configuration
- Retrieval door has piano style hinge
- Interior metal baffle to protect drop opening from fishing
- Pre-drilled mounting holes on sides for in-the-wall installation
- Installation hardware included
- 2 tubular keys included (additional keys available for an additional charge)
- Reinforced secure double steel door to protect against prying
- Works for walls as thick as 6.5n inches
- Securely drop rent checks, letters, mail, cash payments, large envelopes and more
- Drop from one side and remove from the opposite side
- Shown with standard tubular cam-lock.
- Also available: Electronic Lock and Combination Lock for additional charge.
- Easily installed in the wall between standard (16" on center) wall studs
- Requires cutting the drywall between the studs
- Includes two removable and adjustable steel frames to hide the rough cuts
- Maximum thickness of item to drop is 1/2" thick

**Drop Box Specifications:**

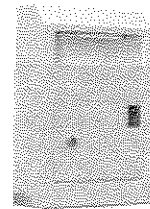
- Drop Slot Size 12-3/8" x 1/2"
- Overall Exterior Dimensions 14"W x 15"H x 8-3/4"D
- Door Thickness 1/8"
- Door Opening 11-1/4" x 5-1/4"
- Pre-drilled mounting holes 3 each side
- Mounting Hardware Included
- Weight 22 lbs

**Customers Also Purchased**

Extra Large Wall Mounted Locking Dropbox  
\$429.99



Cash Drop Safe - depository safe  
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